

Nov 6, 2007

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L86 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:451534 HCAPLUS Full-text

DOCUMENT NUMBER: 140:426180

TITLE: Preparation of nonaqueous
electrolyte battery anode
material for lithium ion
secondary batteryINVENTOR(S): Fukuoka, Hirofumi; Aramata, Mikio; Miyawaki,
Satoru; Ueno, Susumu; Momii, Kazuma

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 7 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004106040	A1	20040603	US 2003-721280	20031126
			<--	
JP 2004178917	A	20040624	JP 2002-342624	20021126
			<--	
KR 2004047621	A	20040605	KR 2003-83847	20031125
			<--	
CN 1505187	A	20040616	CN 2003-10124624	20031126
			<--	
PRIORITY APPLN. INFO.:			JP 2002-342624	A 20021126
			<--	

ED Entered STN: 04 Jun 2004

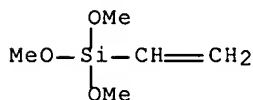
AB A nonaq. electrolyte secondary battery neg. electrode material is provided wherein a neg. electrode active material containing a lithium ion-occluding and releasing material which has been treated with an organosilicon base surface treating agent is surface coated with a conductive coating. Using the neg. electrode material, a lithium ion secondary battery having a high capacity and improved cycle performance is obtainable.

IT 2768-02-7, KBM1003

(coupling agent; preparation of nonaq. electrolyte
battery anode material for lithium ion
secondary battery)

RN 2768-02-7 HCAPLUS

CN Silane, ethenyltrimethoxy- (CA INDEX NAME)



IT 7440-21-3, Silicon, uses 337529-55-2, Silicon oxide
SiO₂-1.6

(preparation of nonaq. electrolyte battery
anode material for lithium ion
secondary battery)

RN 7440-21-3 HCAPLUS
 CN Silicon (CA INDEX NAME)

Si

RN 337529-55-2 HCAPLUS
 CN Silicon oxide (SiO1-1.6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1 - 1.6	17778-80-2
Si	1	7440-21-3

IT 620168-38-9, Silicon oxide SiO1.02
 (preparation of nonaq. electrolyte battery
 anode material for lithium ion secondary
 battery)

RN 620168-38-9 HCAPLUS
 CN Silicon oxide (SiO1.02) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.02	17778-80-2
Si	1	7440-21-3

IC ICM H01M004-62
 ICS B05D005-12

INCL 429212000; 429232000; 427058000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38

ST lithium ion secondary battery anode
 prepn

IT Dispersion (of materials)
 (composite; preparation of nonaq. electrolyte
 battery anode material for lithium ion
 secondary battery)

IT Silanes
 (coupling agent; preparation of nonaq. electrolyte
 battery anode material for lithium ion
 secondary battery)

IT Coating materials
 (elec. conductive; preparation of nonaq. electrolyte
 battery anode material for lithium ion
 secondary battery)

IT Secondary batteries
 (lithium; preparation of nonaq. electrolyte
 battery anode material for lithium ion
 secondary battery)

IT Battery anodes
 Silylation
 (preparation of nonaq. electrolyte battery
 anode material for lithium ion secondary
 battery)

IT Polysiloxanes, uses

10/721,280

(preparation of nonaq. electrolyte battery
anode material for lithium ion secondary
battery)

- IT 7440-44-0, Carbon, uses
(coating; preparation of nonaq. electrolyte
battery anode material for lithium ion
secondary battery)
- IT 2768-02-7, KBM1003
(coupling agent; preparation of nonaq. electrolyte
battery anode material for lithium ion
secondary battery)
- IT 7440-21-3, Silicon, uses 7631-86-9, Silica, uses
337529-55-2, Silicon oxide SiO₂-1.6
(preparation of nonaq. electrolyte battery
anode material for lithium ion
secondary battery)
- IT 7782-42-5, Graphite, uses 620168-38-9, Silicon oxide SiO₂.02
(preparation of nonaq. electrolyte battery
anode material for lithium ion secondary
battery)

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L1	1	SEA FILE=HCAPLUS ABB=ON	PLU=ON	US20040106040/PN
L3	1	SEA FILE=REGISTRY ABB=ON	PLU=ON	7440-21-3/RN
L4	5231	SEA FILE=REGISTRY ABB=ON	PLU=ON	(SI(L)O)/ELS(L)2-3/ELC.SUB
		B		
L5	5231	SEA FILE=REGISTRY ABB=ON	PLU=ON	L4 AND L4
L7	274031	SEA FILE=REGISTRY ABB=ON	PLU=ON	(SI(L)O(L)C)/ELS(L)4/ELC.SUB
		SUB		
L9	1776	SEA FILE=REGISTRY ABB=ON	PLU=ON	L5 NOT 1.7-100/O
L10	1095	SEA FILE=REGISTRY ABB=ON	PLU=ON	L9 NOT 0-0.9999/O
L11	466	SEA FILE=REGISTRY ABB=ON	PLU=ON	L10 AND TIS/CI
L12	334	SEA FILE=REGISTRY ABB=ON	PLU=ON	L11 NOT 1-100/M
L13	97	SEA FILE=REGISTRY ABB=ON	PLU=ON	L12 AND 2/ELC.SUB
L14	247430	SEA FILE=REGISTRY ABB=ON	PLU=ON	L7 NOT PMS/CI
L15	46678	SEA FILE=REGISTRY ABB=ON	PLU=ON	L14 NOT 1-100/NR
L16		QUE ABB=ON PLU=ON	PARTICL? OR MICROPARTICL? OR PARTICU	
			LAT? OR DUST? OR GRIT? OR GRAIN# OR GRANUL? OR POWDER? OR	
			SOOT? OR SMUT? OR FINES# OR PRILL? OR FLAKE# OR PELLET	
L17		QUE ABB=ON PLU=ON	MU OR M(A)U OR MICRON OR MICROMETER	
			OR MICRO(W)METER OR NANOMETER OR NANO(W)METER OR NM OR	
			N(A)M OR MM OR M(A)M	
L18		QUE ABB=ON PLU=ON	BATTERY OR BATTERIES	
L19	483078	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L3
L20	7485	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L13
L23		QUE ABB=ON PLU=ON	NEGATIVE? ELECTROD# OR ANOD## OR NEG	
			? (A)ELECTROD#	
L24	2249	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L23(L)L19
L25	151	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L20(L)L23
L26	641795	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L16(L) (SIZE# OR DIAMETER?
			DIAMETRE? OR RADIUS OR RADII OR DIMENSION? OR WIDTH? OR	
			WIDENESS?)	
L27	438763	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L16(2A) (SIZE# OR DIAMETER?
			DIAMETRE? OR RADIUS OR RADII OR DIMENSION? OR WIDTH? OR	
			WIDENESS?)	
L28	77	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L24 AND L27
L30	62	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L28 AND L17
L31	19057	SEA FILE=HCAPLUS ABB=ON	PLU=ON	"BATTERY ANODES"+PFT,NT/CT
L32	51	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L30 AND L31
L34	388495	SEA FILE=HCAPLUS ABB=ON	PLU=ON	"COATING MATERIALS"+PFT,NT
			/CT	
L35	19	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L24 AND L31 AND L34
L40		QUE ABB=ON PLU=ON	(NONAQUEOUS OR NONAQ# OR NON(A) (AQ#	
			OR AQUEOUS?)) (2A)ELECTROLYT?	
L41	10	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L32 AND L40
L42	5	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L35 AND L40
L43	15	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L41 OR L42
L44	65	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L25 AND L40
L45	2	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L44 AND L26
L46	246	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L20 AND L26
L47	3	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L46 AND L40
L48	163	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L46 AND L17
L49	4	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L48 AND L23
L50	5	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L45 OR L47 OR L49
L51	3	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L46 AND L40
L52	5	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L31 AND L46
L53	7	SEA FILE=HCAPLUS ABB=ON	PLU=ON	(L50 OR L51 OR L52)
L54	49	SEA FILE=HCAPLUS ABB=ON	PLU=ON	L46 AND AMORPH?

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L57	8	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L46 AND L18
L58	144234	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	COMPOSITES+PFT,NT/CT
L59	9	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L46 AND L58
L60	9	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L54 AND (L58 OR COMPOSIT?)
L61	24	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L57 OR L59 OR L60
L62	25	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L53 OR L61
L63	91757	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L15
L64	91757	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L15
L65	4958	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L64 AND (L19 OR L20)
L67	7	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L65 AND (LI OR LITHIUM) (2A) ION?
L68	35	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L65 AND (L18 OR L31)
L69	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND SURFACE TREAT?
L70	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND SURFACE (2A) TREAT?
L71	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND L40
L72	11	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L67 OR (L69 OR L70 OR L71)
L74	30700	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	"DISPERSION (OF MATERIALS) "+PFT,NT/CT
L75	0	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L62 AND L74
L76	25	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L62 OR L75
L77	126	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L63 AND (LI OR LITHIUM) (2A) ION#
L78	12	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND L40
L79	6	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND ANOD## (2A) ACTIV?
L80	7	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND (CONDUCT? (A) COAT? OR L34)
L81	29	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L72 OR (L78 OR L79 OR L80)
L82	10	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L81 AND COAT?
L83	8	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L43 AND (1840-2003)/PRY,AY ,PY
L84	16	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L76 AND (1840-2003)/PRY,AY ,PY
L85	10	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L82 AND (1840-2003)/PRY,AY ,PY
L86	1	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L1 AND (L83 OR L84 OR L85)
L87	7	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L83 NOT L86

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L87 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:1019056 HCAPLUS Full-text
 DOCUMENT NUMBER: 142:9210
 TITLE: Anode material for secondary **nonaqueous**
electrolyte battery, its manufacture, and
 the battery which uses the material
 INVENTOR(S): Zhang, Shou-wu; Kuba, Kanji; Watarai, Yusuke
 PATENT ASSIGNEE(S): Mitsubishi Materials Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

10/721,280

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004335335	A	20041125	JP 2003-131275	20030509
			<--	
PRIORITY APPLN. INFO.:			JP 2003-131275	20030509
			<--	

ED Entered STN: 26 Nov 2004

AB The anode material comprises composite particles, having ceramics coated on a part of Li-intercalating mineral particles; where the mineral particles contain Si, Sn and/or Zn as constituent element; and the ceramics are composed of an oxide, a nitride, or a carbide, which contains Si, Ti, Al and/or Zr, and covers 20-95% total surface of the mineral particles. The anode material is manufactured by preparing 0.02-20 . μ m average particle sized mineral particles, comprising ≥ 1 substance selected from Si, metal silicide, B doped Si, P doped Si, Zn, Sn, Zn containing solid solution, Sn containing solid solution, Zn containing intermetallic compds., and Sn containing intermetallic compds.; soling a precursor organic mol. solution, which contains Si, Ti, Al and/or Zr, by hydrolysis reaction and dehydrative polycondensation; mixing the mineral particles with the sol to coat the sol on the mineral particles; gelatinizing the sol; and firing the gel in a nonoxidative atmospheric at 600-1300° for 0.5-3 h to form composite particles which have the ceramics coated on a part of the mineral particles. The battery uses the above material as an anode active mass.

IT 7440-21-3, Silicon, uses 7440-21-3D, Silicon, B doped

(manufacture of anode materials containing ceramics coated mineral particle for secondary batteries)

RN 7440-21-3 HCAPLUS

CN Silicon (CA INDEX NAME)

Si

RN 7440-21-3 HCAPLUS

CN Silicon (CA INDEX NAME)

Si

IC ICM H01M004-38

ICS H01M004-02; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Battery anodes

Secondary batteries

(manufacture of anode materials containing ceramics coated mineral particle for secondary batteries)

IT 1344-28-1, Alumina, uses 7440-21-3, Silicon, uses

7440-21-3D, Silicon, B doped 7440-21-3D, Silicon, P

doped 12019-69-1 12688-08-3, Carbon titanium oxide 39345-87-4,

Silicon carbide oxide 171089-01-3, Iron silicide (Fe_{0.2}Si_{0.8})

(manufacture of anode materials containing ceramics coated mineral particle for secondary batteries)

L87 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN

10/721,280

ACCESSION NUMBER: 2004:1019055 HCAPLUS Full-text
DOCUMENT NUMBER: 142:9209
TITLE: Anode material for secondary nonaqueous
electrolyte battery, its manufacture, and
the battery which uses the material
INVENTOR(S): Chang, Shou-Bin; Kuba, Kanji; Watarai, Yusuke
PATENT ASSIGNEE(S): Mitsubishi Materials Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004335334	A	20041125	JP 2003-131274	20030509

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PRIORITY APPLN. INFO.: JP 2003-131274 20030509

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ED Entered STN: 26 Nov 2004

AB The anode material comprises composite particles, having ceramics coated on a part or whole part of mineral particles which are capable of intercalating/decalating Li⁺; where the mineral particles contain Si, Sn and/or Zn as constituent element; and the ceramics are composed of an oxide, a nitride, or a carbide, which contains Si, Ti, Al and/or Zr. The anode material is manufactured by preparing 0.02-20 μ m average particle sized mineral particles, comprising ≥ 1 substance selected from Si, metal silicide, B doped Si, P doped Si, Zn, Sn, Zn containing solid solution, Sn containing solid solution, Zn containing intermetallic compds., and Sn containing intermetallic compds.; mixing the mineral particles with a precursor organic mol. solution, containing Si, Ti, Al and/or Zr; gelatinizing the mixture by hydrolysis reaction and dehydrative polycondensation; firing the gel mixture in a nonoxidative atmospheric at 600-1300° for 0.5-3 h to form composite particles which have the ceramics coated on a part or whole part of the mineral particles. The battery uses the above material as an anode active mass.

IT 7440-21-3, Silicon, uses 7440-21-3D, Silicon, B doped

(manufacture of anode materials containing ceramics coated mineral particle for secondary batteries)

RN 7440-21-3 HCAPLUS

CN Silicon (CA INDEX NAME)

Si

RN 7440-21-3 HCAPLUS

CN Silicon (CA INDEX NAME)

Si

IC ICM H01M004-38
 ICS H01M004-02; H01M004-62; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 IT **Battery anodes**
 Secondary batteries
 (manufacture of anode materials containing ceramics coated mineral particle
 for secondary batteries)
 IT 1344-28-1, Alumina, uses 7440-21-3, Silicon, uses
 7440-21-3D, Silicon, B doped 7440-21-3D, Silicon, P
 doped 12019-69-1 12688-08-3, Carbon titanium oxide 39345-87-4,
 Silicon carbide oxide 171089-01-3, Iron silicide (Fe_{0.2}Si_{0.8})
 (manufacture of anode materials containing ceramics coated mineral
 particle for secondary batteries)

L87 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:720383 HCAPLUS Full-text
 DOCUMENT NUMBER: 141:210142
 TITLE: Button-type secondary lithium batteries capable of
 reflow soldering
 INVENTOR(S): Kanno, Yoshimi; Koseki, Hiroyuki; Watanabe,
 Shunji; Sakai, Tsugio
 PATENT ASSIGNEE(S): SII Microparts Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004247119	A	20040902	JP 2003-34601	20030213
			<--	
US 2004219424	A1	20041104	US 2004-766589	20040128
			<--	
PRIORITY APPLN. INFO.:			JP 2003-34601	A 20030213
			<--	

ED Entered STN: 03 Sep 2004
 AB In the batteries including cathodes, anodes, electrolytes containing nonaq.
 solvents and salts, separators, and gaskets, surfaces of active mass particles
 of the cathodes and/or anodes are coated with oil-repellent substances.
 Preferably, the surfaces are coated with fluoropolymers or oil-repellent
 conductors.
 IT 7440-21-3, Silicon, uses
 (anode active mass; heat-resistant button-type secondary
 Li batteries including cathode and/or anode active mass
 particles coated with oil-repellent substances)
 RN 7440-21-3 HCAPLUS
 CN Silicon (CA INDEX NAME)

si

IC ICM H01M004-62
 ICS H01M002-08; H01M002-16; H01M004-02; H01M004-40; H01M004-48;
 H01M004-58; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 40

- IT **Battery anodes**
 Battery cathodes
 Battery electrolytes
 Gaskets
 Heat-resistant materials
 Secondary battery separators
 (heat-resistant button-type secondary Li batteries including cathode and/or anode active mass particles coated with oil-repellent substances)
- IT **Coating materials**
 (oil-resistant; heat-resistant button-type secondary Li batteries including cathode and/or anode active mass particles coated with oil-repellent substances)
- IT 1314-35-8, Tungsten oxide (WO₃), uses 7440-21-3, Silicon, uses 12036-22-5, Tungsten oxide (WO₂) 12798-95-7 113443-18-8, Silicon oxide (SiO)
 (anode active mass; heat-resistant button-type secondary Li batteries including cathode and/or anode active mass particles coated with oil-repellent substances)

L87 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:250433 HCAPLUS Full-text

DOCUMENT NUMBER: 140:273557

TITLE: Secondary **nonaqueous-electrolyte**
 batteries showing excellent charge-discharge cycling performance

INVENTOR(S): Fujiwara, Aiichiro; Sato, Asako; Takabayashi, Junichi; Kitayama, Hiroshi

PATENT ASSIGNEE(S): Toshiba Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004095306	A	20040325	JP 2002-254124	20020830

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PRIORITY APPLN. INFO.: JP 2002-254124 20020830

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ED Entered STN: 26 Mar 2004

AB The batteries comprise anodes with d. of 1.1-1.4 g/cm³ and containing Si-containing particles (a) having (at least partially formed) carbonaceous coatings with D50 (50% grain diameter) 20-40 .mu .m, first graphitic particles with D50 5-20 .mu m, and second graphitic particles with D50 2-10 .mu m.

IT **7440-21-3, Silicon, uses**
 (anodes containing Si-containing particles with carbonaceous coatings and graphitic particles for secondary batteries)

RN 7440-21-3 HCAPLUS

CN Silicon (CA INDEX NAME)

IC ICM H01M004-02
 ICS H01M004-38; H01M004-58; H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST **nonaq electrolyte** battery anode silicon
 carbonaceous coating; graphite anode **particle size**
 distribution battery
 IT **Battery anodes**
 Secondary batteries
 (anodes containing Si-containing particles with carbonaceous coatings and
 graphitic particles for secondary batteries)
 IT **Particle size distribution**
 (graphite; anodes containing Si-containing particles with carbonaceous
 coatings and graphitic particles for secondary batteries)
 IT 7440-21-3, Silicon, uses 7782-42-5, Graphite, uses
 (anodes containing Si-containing particles with carbonaceous
 coatings and graphitic particles for secondary batteries)

L87 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:735270 HCAPLUS Full-text

DOCUMENT NUMBER: 139:263296

TITLE: Secondary **nonaqueous electrolyte**
 battery without anode deformation or electrolytic
 solution maldistribution and its manufacture

INVENTOR(S): Nakamoto, Takayuki; Nanai, Norishige; Bito,
 Yasuhiko; Kasamatsu, Shinji; Nitta, Yoshiaki

PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003263979	A	20030919	JP 2002-66651	20020312

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PRIORITY APPLN. INFO.: JP 2002-66651 20020312

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ED Entered STN: 19 Sep 2003

AB In manufacturing the battery, an anode is formed by filling an anode active
 substance with average **particle size** d 0.5-50 . μm into a current collector
 having continuous pores, sp. surface area 0.002-0.06 m^2/g , and porosity 60-
 97%. In the obtained anode, 10-25 volume% of the continuous pores are filled
 with the active substance, and the rate of the bonding area between the active
 substance and the current collector to the surface area of the active
 substance is 5-40%. Since deformation of anode or maldistribution of an
 electrolytic solution during charging and discharging is prevented, the
 battery has high capacity and long cycle life.

IT 7440-21-3, Silicon, uses
 (anode active substance; manufacture of **nonaq.**
electrolyte battery without anode deformation or
 electrolytic solution maldistribution for high capacity and long cycle
 life)

RN 7440-21-3 HCAPLUS

CN Silicon (CA INDEX NAME)

IC ICM H01M004-02
ICS H01M004-38; H01M004-66; H01M004-80; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST battery anode deformation electrolytic soln maldistribution
prevention; **nonaq electrolyte** battery anode manuf
IT **Battery anodes**
(manufacture of **nonaq. electrolyte** battery without
anode deformation or electrolytic solution maldistribution for high
capacity and long cycle life)
IT Silicon alloy, base
Tin alloy, base
(anode active substance; manufacture of **nonaq.**
electrolyte battery without anode deformation or
electrolytic solution maldistribution for high capacity and long cycle
life)
IT 7440-21-3, Silicon, uses 7440-31-5, Tin, uses 12787-61-0
57952-74-6
(anode active substance; manufacture of **nonaq.**
electrolyte battery without anode deformation or
electrolytic solution maldistribution for high capacity and long cycle
life)
IT 7440-02-0, Nickel, uses 7440-50-8, Copper, uses 11122-89-7
(current collector; manufacture of **nonaq. electrolyte**
battery without anode deformation or electrolytic solution
maldistribution for high capacity and long cycle life)

L87 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:279725 HCAPLUS Full-text
DOCUMENT NUMBER: 138:306758
TITLE: Anode material, its manufacture, anode using the
material, secondary **nonaqueous**
electrolyte lithium battery and secondary
lithium polymer battery using the anode
INVENTOR(S): Tokai, Yusuke; Li, Chang-Gui; Sugihara, Tadashi
PATENT ASSIGNEE(S): Mitsubishi Materials Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2003109590	A	20030411	JP 2001-303060	20010928

PRIORITY APPLN. INFO.: JP 2001-303060 20010928
<--

ED Entered STN: 11 Apr 2003

AB The anode material contains a polycryst. Si powder having average particle size 1-10 μ m as main component; and is manufactured by mixing the polycryst. Si powder or a single crystalline Si powder with ≥ 1 powder, which has m.p. higher than either or both Si powders and is selected from oxide, nitride and carbide powders; preparing a Si melt by heating the mixture in an inert gas atmospheric at 1410-1550°; dispersing the oxide, nitride and/or carbide powder in the Si melt; preparing the polycrystal Si lumps by cooling the melt mixture

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with cooling speed 1-30°C/min; and milling the Si lumps. The batteries uses an anode, containing the above mat and a conductive assistant agent.

IT 7440-21-3P, Silicon, uses
(polycryst.; manufacture of anode materials containing polycrystal Si powders with controlled particle size for secondary lithium batteries)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

Si

IC ICM H01M004-38
ICS H01M004-02; H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT **Battery anodes**
(manufacture of anode materials containing polycrystal Si powders with controlled particle size for secondary lithium batteries)
IT 7440-44-0, Carbon, uses
(conductive assistant agent; manufacture of anode materials containing polycrystal Si powders with controlled particle size for secondary lithium batteries)
IT 1344-28-1P, Alumina, uses
(manufacture of anode materials containing polycrystal Si powders with controlled particle size for secondary lithium batteries)
IT 7440-21-3P, Silicon, uses
(polycryst.; manufacture of anode materials containing polycrystal Si powders with controlled particle size for secondary lithium batteries)

L87 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:119681 HCAPLUS Full-text
DOCUMENT NUMBER: 136:170265
TITLE: Manufacture of anode for secondary
nonaqueous electrolyte battery
and the battery
INVENTOR(S): Fukumoto, Yusuke; Okochi, Masaya; Ohata, Tsumoru
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
JP 2002050353	A	20020215	JP 2000-234448	20000802

PRIORITY APPLN. INFO.: JP 2000-234448 20000802
<--

ED Entered STN: 15 Feb 2002

AB The anode is prepared by applying a ≤60 μm thick layer of an active mass paste, containing a conductor and a binder, on both side of a collector; where the active mass has a Si, Sn, and/or Zn solid core covered with a solid layer

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of a solid solution or intermetallic compound of the core component and Group 2, 12, 14, and/or Group 14 element, and the paste has a particle size distribution with D50 3-25 μm and D90 ≤ 50 . μm .

IT 7440-21-3, Silicon, uses
(manufacture of solid coated silicon particles with controlled
size distribution for secondary lithium battery
anodes)
RN 7440-21-3 HCAPLUS
CN Silicon (CA INDEX NAME)

si

IC ICM H01M004-38
ICS H01M004-02; H01M004-04; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST battery anode silicon solid soln coating; tin anode solid coating
battery; zinc anode solid coating battery; particle
size distribution battery anode paste; intermetallic compd
coating battery anode particle
IT Battery anodes
Particle size
(manufacture of solid coated silicon particles with controlled
size distribution for secondary lithium battery anodes)
IT 7440-21-3, Silicon, uses 12201-89-7, Nickel silicide (NiSi_2)
(manufacture of solid coated silicon particles with controlled
size distribution for secondary lithium battery
anodes)

=> d que 188

L1 1 SEA FILE=HCAPLUS ABB=ON PLU=ON US20040106040/PN
 L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-21-3/RN
 L4 5231 SEA FILE=REGISTRY ABB=ON PLU=ON (SI(L)O)/ELS(L)2-3/ELC.SU
 B
 L5 5231 SEA FILE=REGISTRY ABB=ON PLU=ON L4 AND L4
 L7 274031 SEA FILE=REGISTRY ABB=ON PLU=ON (SI(L)O(L)C)/ELS(L)4/ELC.
 SUB
 L9 1776 SEA FILE=REGISTRY ABB=ON PLU=ON L5 NOT 1.7-100/O
 L10 1095 SEA FILE=REGISTRY ABB=ON PLU=ON L9 NOT 0-0.9999/O
 L11 466 SEA FILE=REGISTRY ABB=ON PLU=ON L10 AND TIS/CI
 L12 334 SEA FILE=REGISTRY ABB=ON PLU=ON L11 NOT 1-100/M
 L13 97 SEA FILE=REGISTRY ABB=ON PLU=ON L12 AND 2/ELC.SUB
 L14 247430 SEA FILE=REGISTRY ABB=ON PLU=ON L7 NOT PMS/CI
 L15 46678 SEA FILE=REGISTRY ABB=ON PLU=ON L14 NOT 1-100/NR
 L16 QUE ABB=ON PLU=ON PARTICL? OR MICROPARTICL? OR PARTICU
 LAT? OR DUST? OR GRIT? OR GRAIN# OR GRANUL? OR POWDER? OR
 SOOT? OR SMUT? OR FINES# OR PRILL? OR FLAKE# OR PELLET
 L17 QUE ABB=ON PLU=ON MU OR M(A)U OR MICRON OR MICROMETER
 OR MICRO(W)METER OR NANOMETER OR NANO(W)METER OR NM OR
 N(A)M OR MM OR M(A)M
 L18 QUE ABB=ON PLU=ON BATTERY OR BATTERIES
 L19 483078 SEA FILE=HCAPLUS ABB=ON PLU=ON L3
 L20 7485 SEA FILE=HCAPLUS ABB=ON PLU=ON L13
 L23 QUE ABB=ON PLU=ON NEGATIVE? ELECTROD# OR ANOD## OR NEG
 ?(A)ELECTROD#
 L24 2249 SEA FILE=HCAPLUS ABB=ON PLU=ON L23(L)L19
 L25 151 SEA FILE=HCAPLUS ABB=ON PLU=ON L20(L)L23
 L26 641795 SEA FILE=HCAPLUS ABB=ON PLU=ON L16(L)(SIZE# OR DIAMETER?
 DIAMETRE? OR RADIUS OR RADII OR DIMENSION? OR WIDTH? OR
 WIDENESS?)
 L27 438763 SEA FILE=HCAPLUS ABB=ON PLU=ON L16(2A)(SIZE# OR DIAMETER?
 DIAMETRE? OR RADIUS OR RADII OR DIMENSION? OR WIDTH? OR
 WIDENESS?)
 L28 77 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 AND L27
 L30 62 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND L17
 L31 19057 SEA FILE=HCAPLUS ABB=ON PLU=ON "BATTERY ANODES"+PFT,NT/CT

 L32 51 SEA FILE=HCAPLUS ABB=ON PLU=ON L30 AND L31
 L34 388495 SEA FILE=HCAPLUS ABB=ON PLU=ON "COATING MATERIALS"+PFT,NT
 /CT
 L35 19 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 AND L31 AND L34
 L40 QUE ABB=ON PLU=ON (NONAQUEOUS OR NONAQ# OR NON(A)(AQ#
 OR AQUEOUS?))(2A)ELECTROLYT?
 L41 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND L40
 L42 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L35 AND L40
 L43 15 SEA FILE=HCAPLUS ABB=ON PLU=ON L41 OR L42
 L44 65 SEA FILE=HCAPLUS ABB=ON PLU=ON L25 AND L40
 L45 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L44 AND L26
 L46 246 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND L26
 L47 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND L40
 L48 163 SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND L17
 L49 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND L23
 L50 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 OR L47 OR L49
 L51 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND L40
 L52 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND L46
 L53 7 SEA FILE=HCAPLUS ABB=ON PLU=ON (L50 OR L51 OR L52)
 L54 49 SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND AMORPH?

10/721,280

L57	8	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L46 AND L18
L58	144234	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	COMPOSITES+PFT,NT/CT
L59	9	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L46 AND L58
L60	9	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L54 AND (L58 OR COMPOSIT?)
L61	24	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L57 OR L59 OR L60
L62	25	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L53 OR L61
L63	91757	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L15
L64	91757	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L15
L65	4958	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L64 AND (L19 OR L20)
L67	7	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L65 AND (LI OR LITHIUM) (2A) ION?
L68	35	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L65 AND (L18 OR L31)
L69	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND SURFACE TREAT?
L70	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND SURFACE (2A) TREAT?
L71	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND L40
L72	11	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L67 OR (L69 OR L70 OR L71)
L74	30700	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	"DISPERSION (OF MATERIALS) "+PFT,NT/CT
L75	0	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L62 AND L74
L76	25	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L62 OR L75
L77	126	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L63 AND (LI OR LITHIUM) (2A) ION#
L78	12	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND L40
L79	6	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND ANOD## (2A) ACTIV?
L80	7	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND (CONDUCT? (A) COAT? OR L34)
L81	29	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L72 OR (L78 OR L79 OR L80)
L82	10	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L81 AND COAT?
L83	8	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L43 AND (1840-2003)/PRY,AY ,PY
L84	16	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L76 AND (1840-2003)/PRY,AY ,PY
L85	10	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L82 AND (1840-2003)/PRY,AY ,PY
L86	1	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L1 AND (L83 OR L84 OR L85)
L88	16	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L84 NOT L86

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L88 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:522905 HCAPLUS Full-text

DOCUMENT NUMBER: 143:62657

TITLE: Electrode active mass for secondary
nonaqueous electrolyte
battery, its manufacture, and the
battery

INVENTOR(S): Yamada, Masayuki; Shirasawa, Kaori; Ueda, Atsushi;
Aoyama, Shigeo

PATENT ASSIGNEE(S): Hitachi Maxell Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 19 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005158721	A	20050616	JP 2004-316920	20041029
			<--	
JP 3992708	B2	20071017		
PRIORITY APPLN. INFO.:			JP 2003-373519	A 20031031
			<--	

ED Entered STN: 17 Jun 2005

AB The electrode active mass are composite **particles** containing Li intercalating **particles**, with a conductive carbonaceous coating, and has ≥ 1 pore distribution peak in the range of 0.001-0.2 μm , on it pore size distribution curve determined by Hg intrusion porosimetry. The electrode active mass is manufactured by preparing the composite **particles** containing Li intercalating **particles** having BET surface $\geq 5 \text{ m}^2/\text{g}$, and heating the **granules** and a hydrocarbon gas for a gas phase deposition of the carbonaceous coating.

IT 113443-18-8, Silicon oxide (SiO)

(structure and manufacture of composite lithium intercalating electrode active mass particles with conductive carbonaceous coatings for secondary lithium **batteries**)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

IC ICM H01M004-58

ICS H01M004-02; H01M004-38; H01M004-48; H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** electrode carbonaceous coating

active mass manuf; pore size distribution carbonaceous coating

electrode active mass

IT **Battery** electrodes

(structure and manufacture of composite lithium intercalating electrode active mass particles with conductive carbonaceous coatings for secondary lithium **batteries**)

IT Carbon black, uses

Carbonaceous materials (technological products)

(structure and manufacture of composite lithium intercalating electrode active mass particles with conductive carbonaceous coatings for secondary lithium **batteries**)

IT 1307-96-6, Cobalt oxide (CoO), uses 7440-44-0, Carbon, uses

12031-95-7, Lithium titanium oxide (Li₄Ti₅O₁₂) 113443-18-8,Silicon oxide (SiO) 126066-81-7, Boron silicide (B_{0.3}Si_{0.7})854733-27-0, Cobalt lithium nickel nitride (Co_{0.4}Li_{2.5}Ni_{0.1}N)

(structure and manufacture of composite lithium intercalating electrode active mass particles with conductive carbonaceous coatings for secondary lithium **batteries**)

L88 ANSWER 2 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:698664 HCAPLUS Full-text

DOCUMENT NUMBER: 139:183506

TITLE: Scraper blades and doctor blades with a nickel coating containing wear-resistant particles

INVENTOR(S): Sundberg, Roland; Lunnerfjord, Allan; Gaven,

PATENT ASSIGNEE(S): Jan-Aake
 SOURCE: Swedev AB, Swed.
 Swed., 17 pp.
 CODEN: SSXXAY
 DOCUMENT TYPE: Patent
 LANGUAGE: Swedish
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
SE 519466	C2	20030304	SE 2000-4506	20001207
			<--	
WO 2002046526	A1	20020613	WO 2001-SE2637	20011129
			<--	
W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW	
RW:			GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG	
EP 1349986	A1	20031008	EP 2001-999701	20011129
			<--	
EP 1349986	B1	20060607		
R:			AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR	
JP 2004515651	T	20040527	JP 2002-548235	20011129
			<--	
AT 329083	T	20060615	AT 2001-999701	20011129
			<--	
US 2004137261	A1	20040715	US 2004-433771	20040113
			<--	
US 6841264	B2	20050111		
PRIORITY APPLN. INFO.:			SE 2000-4506	A 20001207
			<--	
			WO 2001-SE2637	W 20011129
			<--	

ED Entered STN: 08 Sep 2003

AB Steel scraper blades and doctor blades contain a composite Ni coating. The coating consists of an electrodeposited Ni layer containing wear-resistant particles. Preferably, the coating contains ≥ 2 electrodeposited Ni layers with different compns.; the coatings can be differently formulated on different blade sections. Amount of the wear-resistant oxide, carbide, or nitride particles in the bath is 5-30 volume%, and their particle size is ≥ 2 μm . The total thickness of the coating on the blade underside and overside is 8-25 μm and 3-15 μm , resp. The electrodeposited coating is continuously deposited in ≥ 1 electrolytic cell containing an electrolytic bath with ≥ 1 Ni salt and also the wear-resistant particles suspended in ≥ 1 of the cells. Optionally, the coated blades are then heat treated ≤ 30 min at 200-600°.

IT 113443-18-8, Silicon oxide (SiO)

(wear-resistant particles in nickel coating for scraper blades and doctor blades)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
Si	1	7440-21-3

IC ICM D21G003-00

CC 55-6 (Ferrous Metals and Alloys)

Section cross-reference(s): 57

IT Blades

Cermets

Electrodeposition

Electrodeposits

(scraper blades and doctor blades with nickel coating containing wear-resistant particles)

IT 409-21-2, Silicon carbide (SiC), uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 10043-11-5, Boron nitride (BN), uses 12033-89-5, Silicon nitride, uses 12070-08-5, Titanium carbide (TiC) 13463-67-7, Titania, uses 113443-18-8, Silicon oxide (SiO) (wear-resistant particles in nickel coating for scraper blades and doctor blades)

L88 ANSWER 3 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:420640 HCAPLUS Full-text

DOCUMENT NUMBER: 139:156793

TITLE: Visible photoluminescence in **amorphous** SiO_x thin films prepared by silicon evaporation under a molecular oxygen atmosphere

AUTHOR(S): Molinari, M.; Rinnert, H.; Vergnat, M.

CORPORATE SOURCE: Laboratoire de Physique des Materiaux, (U.M.R. C.N.R.S. No 7556), Universite Henri Poincare Nancy 1, Vandoeuvre-les-Nancy, 54506, Fr.

SOURCE: Applied Physics Letters (2003), 82(22), 3877-3879

CODEN: APPLAB; ISSN: 0003-6951

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 02 Jun 2003

AB A simple reactive evaporation method is proposed to prepare light-emitting **amorphous** SiO_x thin films. By evaporating pure Si in a controlled mol. O atmospheric, it is possible to obtain a very large **composition** range. By changing the pressure in the preparation chamber, x can be varied from 0.7 to 1.85. The **composition** and the structure of the films were studied using energy dispersive x-ray, IR absorption and x-ray photoelectron spectroscopies. The samples contain **amorphous** Si clusters dispersed inside an insulating Si oxide matrix. The room-temperature photoluminescence properties were then measured. By conveniently choosing the O pressure, the as-deposited films exhibit visible photoluminescence without any annealing post-treatments. The luminescence intensity initially increases with excess Si concentration and then disappears for a too-high Si excess. The above effect is interpreted in terms of confinement of the **amorphous** Si clusters in the insulating matrix.

IT 111446-23-2, Silicon oxide (SiO_{1.3}) 145114-32-5, Silicon oxide (SiO_{1.6})

(visible photoluminescence in **amorphous** SiO_x thin films prepared by silicon evaporation under mol. oxygen atmospheric)

RN 111446-23-2 HCAPLUS

CN Silicon oxide (SiO_{1.3}) (CA INDEX NAME)

10/721,280

Component	Ratio	Component Registry Number
O	1.3	17778-80-2
Si	1	7440-21-3

RN 145114-32-5 HCAPLUS
CN Silicon oxide (SiO1.6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.6	17778-80-2
Si	1	7440-21-3

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 78
ST silicon oxide **amorphous** luminescence IR spectra XPS
IT IR spectra
X-ray photoelectron spectra
(of **amorphous** SiOx thin films)
IT Films
Luminescence
(visible photoluminescence in **amorphous** SiOx thin films
prepared by silicon evaporation under mol. oxygen atmospheric)
IT Clusters
Particle size
(visible photoluminescence in **amorphous** SiOx thin films
with Si cluster particle size)
IT 7440-21-3, Silicon, properties 7782-44-7, Oxygen, properties
(visible photoluminescence in **amorphous** SiOx thin films
prepared by silicon evaporation under mol. oxygen atmospheric)
IT 60676-86-0, Vitreous Silica 111446-23-2, Silicon oxide
(SiO1.3) 126447-59-4, Silicon oxide (SiO0.07) 145114-32-5,
Silicon oxide (SiO1.6) 182305-70-0, Silicon oxide (SiO1.85)
(visible photoluminescence in **amorphous** SiOx thin films
prepared by silicon evaporation under mol. oxygen atmospheric)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L88 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:163297 HCAPLUS Full-text
DOCUMENT NUMBER: 139:75597
TITLE: Influence of the temperature on the
photoluminescence of silicon clusters embedded in
a silicon oxide matrix
AUTHOR(S): Rinnert, H.; Vergnat, M.
CORPORATE SOURCE: Laboratoire de Phys. des Materiaux, Univ. Henri
Poincare Nancy 1, Vandoeuvre-le`s-Nancy, 54506,
Fr.
SOURCE: Physica E: Low-Dimensional Systems &
Nanostructures (Amsterdam, Netherlands) (
2003), 16(3-4), 382-387
CODEN: PELNFM; ISSN: 1386-9477
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 04 Mar 2003

AB Amorphous Si oxide thin films were prepared by coevapn. of Si and SiO in ultra-high vacuum. Different compns. were obtained by changing the evaporation rate of Si. After thermal annealing treatments, the dissociation of the Si oxide in pure Si and SiO₂ gives Si clusters embedded in a Si oxide matrix. Thus the samples were annealed to different temps. up to 950°. Depending on the annealing temperature and on the composition, different cluster sizes were obtained. The photoluminescence (PL) energy depends on the cluster size and a large range of wavelengths was obtained from 500 to 750 nm. The PL, attributed to a confinement effect of the electron-hole pairs in the Si particles, was studied as a function of the temperature. The continuous decrease of PL intensity with the temperature from 77 to 500 K depends on the structure of the samples. For samples with well-separated clusters, the PL decreases rapidly with the temperature. For samples containing clusters separated by a small distance, the PL weakly depends on the temperature. No shift of the energy is observed. The results are discussed by taking into account the competition between the radiative recombination in the Si clusters and the nonradiative escape of the carriers via a hopping mechanism.

IT 113443-18-8, Silicon oxide (SiO)
(influence of temperature on photoluminescence of silicon clusters embedded in a silicon oxide matrix)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
Si	1	7440-21-3

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 76

IT 113443-18-8, Silicon oxide (SiO)
(influence of temperature on photoluminescence of silicon clusters embedded in a silicon oxide matrix)

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:976165 HCAPLUS Full-text

DOCUMENT NUMBER: 138:42052

TITLE: Anode material containing coated silicon oxide for secondary nonaqueous-electrolyte battery

INVENTOR(S): Miyawaki, Satoru; Aramata, Mikio; Fukuoka, Hirofumi; Ueno, Susumu

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002373653	A	20021226	JP 2001-181830	20010615

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PRIORITY APPLN. INFO.: JP 2001-181830 20010615

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ED Entered STN: 27 Dec 2002

AB The title **anode** material contains conductive SiO_x powder containing SiO_x having average **particle size** d50(A) 0.2-20 µm coated with a conductive substance having average **particle size** d50(B) 20 nm to 13 µm [where d50(A)/d50(B) ≥1.5] by mech. surface fusion treatment. Preferably, the anode contains SiO_x (x = 0.6-1.5). The resulting **battery** has high capacity and long cycle life.

IT 113443-18-8P, Silicon oxide (SiO)
(**anode** material containing coated silicon oxide for secondary **nonaq.-electrolyte battery**)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

IC ICM H01M004-58
ICS C01B033-113; H01M004-02; H01M004-04; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST silicon oxide **anode** secondary **nonaq battery**

IT **Battery anodes**
(**anode** material containing coated silicon oxide for secondary **nonaq.-electrolyte battery**)

IT 113443-18-8P, Silicon oxide (SiO)
(**anode** material containing coated silicon oxide for secondary **nonaq.-electrolyte battery**)

IT 7782-42-5P, Graphite, uses
(coating; **anode** material containing coated silicon oxide for secondary **nonaq.-electrolyte battery**)

L88 ANSWER 6 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:936873 HCAPLUS Full-text

DOCUMENT NUMBER: 138:140003

TITLE: SiO_x-based anodes for secondary lithium **batteries**

AUTHOR(S): Yang, J.; Takeda, Y.; Imanishi, N.; Capiglia, C.;
Xie, J. Y.; Yamamoto, O.

CORPORATE SOURCE: Department of Chemistry, Mie University, Mie, Tsu,
514-8507, Japan

SOURCE: Solid State Ionics (2002), 152-153,
125-129
CODEN: SSIOD3; ISSN: 0167-2738

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 10 Dec 2002

AB Silicon oxide **powders** with different oxygen contents and **particle sizes** have been examined as anode materials for lithium-ion **batteries**. SiO_{0.8} electrode can provide a reversible capacity of .apprx.1600 mA-h/g over a voltage range 0.02-1.4 V vs. Li. The capacity drops with the increase in the oxygen content. Limited lithium insertion, however, alleviates the host volume expansion and thereby significantly improves the cyclability. In addition, the cycle performance is also dependent on the electrode fabrication method. By **powder** mixing and pressing, the electrode shows a larger insertion

capacity, however the use of N-methylpyrrolidone solvent for dispersing poly(vinylidene difluoride) binder suppresses the capacity fade on cycling.

IT 107875-69-4, Silicon oxide (SiO_{1.1}) 113443-18-8,
Silicon oxide (SiO)
(silicon oxide-based anodes for lithium secondary batteries
)

RN 107875-69-4 HCAPLUS

CN Silicon oxide (SiO_{1.1}) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1.1	17778-80-2
Si	1	7440-21-3

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST silicon oxide anode lithium battery

IT **Battery anodes**
(silicon oxide-based anodes for lithium secondary batteries
)

IT 106496-83-7, Silicon oxide (SiO_{0.8}) 107875-69-4, Silicon
oxide (SiO_{1.1}) 113443-18-8, Silicon oxide (SiO)
(silicon oxide-based anodes for lithium secondary batteries
)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L88 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:352138 HCAPLUS Full-text

DOCUMENT NUMBER: 137:50401

TITLE: Structure-property relationships in
dispersion-hardened Ni-SiO and Ni-Al₂O₃ films

AUTHOR(S): Il'insky, A. I.; Lyabuk, S. I.; Kogut, S. K.

CORPORATE SOURCE: National Technical University "Kharkiv
Polytechnical Institute", Kharkov, 61002, Ukraine

SOURCE: Functional Materials (2001), 8(3),
535-538

CODEN: FMUAB4; ISSN: 1027-5495

PUBLISHER: National Academy of Sciences of Ukraine, Institute
for Single Crystals

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 12 May 2002

AB Composite films of Ni-SiO and Ni-Al₂O₃ with the oxide phase content up to 2
volume% were prepared by vapor deposition method. The film structure study by
TEM and FIM techniques revealed the presence of SiO nanoscale particles of 10-
30 nm size and Al₂O₃ ones of 4-10 nm size distributed homogeneously in the
polycryst. Ni matrix of .apprx.200 nm average grain size. The films exhibited
an extremely high level of strength (1100 and 1120 MPa for SiO- and Al₂O₃-

containing films, correspondingly) and wear resistance. The stress relaxation in the composites is also considered.

IT 113443-18-8, Silicon oxide (SiO)
(composite film reinforcement; structure - mech. property relationships in dispersion-hardened Ni-SiO and Ni-Al₂O₃ composite films)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

CC 56-4 (Nonferrous Metals and Alloys)

IT Metal matrix composites

(film; structure - mech. property relationships in dispersion-hardened Ni-SiO and Ni-Al₂O₃ composite films)

IT 1344-28-1, Alumina, properties 113443-18-8, Silicon oxide (SiO)

(composite film reinforcement; structure - mech. property relationships in dispersion-hardened Ni-SiO and Ni-Al₂O₃ composite films)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:351320 HCAPLUS Full-text

DOCUMENT NUMBER: 135:213318

TITLE: Novel composite anodes based on nano-oxides and Li_{2.6}Co_{0.4}N for lithium ion batteries

AUTHOR(S): Yang, J.; Takeda, Y.; Imanishi, N.; Yamamoto, O.

CORPORATE SOURCE: Department of Chemistry, Faculty of Engineering, Mie University, Tsu, Mie, 514-8507, Japan

SOURCE: Electrochimica Acta (2001), 46(17), 2659-2664

CODEN: ELCAAV; ISSN: 0013-4686

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 17 May 2001

AB The use of nano-sized SnO and SiO_{1.1} powders as anode materials for lithium ion batteries can give high cycle capacities. However, these metallic oxides show striking irreversibility in the first cycle. This study focuses on the irreversibility compensation of such oxides by Li_{2.6}Co_{0.4}N compound. The mixed hosts for a new composite electrode can offer an initial efficiency close to 100%. The cycle performance is improved significantly by choosing a suitable electrode binder and electron conductor. The rechargeability of SiO_{1.1}-containing electrodes is strongly dependent on cell construction. A packed electrode demonstrates a much better cycling stability than a hanging one in the present composition range. The changes in microstructure of the active materials on cycling have been followed by X-ray diffraction anal.

IT 107875-69-4, Silicon oxide (SiO_{1.1})

(composite anodes based on nano-oxides and Li_{2.6}Co_{0.4}N for lithium ion batteries)

RN 107875-69-4 HCAPLUS

CN Silicon oxide (SiO_{1.1}) (CA INDEX NAME)

10/721,280

Component	Ratio	Component Registry Number
O	1.1	17778-80-2
Si	1	7440-21-3

```
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary battery anode cobalt lithium nitride
IT Anodes
    (composite anodes based on nano-oxides and Li2.6Co0.4N for lithium
    ion batteries)
IT Secondary batteries
    (lithium; composite anodes based on nano-oxides and Li2.6Co0.4N for
    lithium ion batteries)
IT 1332-29-2, Tin oxide 107875-69-4, Silicon oxide (SiO1.1)
    174421-80-8, Cobalt lithium nitride (Co0.4Li2.6N)
    (composite anodes based on nano-oxides and Li2.6Co0.4N for lithium
    ion batteries)
REFERENCE COUNT:      14      THERE ARE 14 CITED REFERENCES AVAILABLE FOR
                              THIS RECORD. ALL CITATIONS AVAILABLE IN THE
                              RE FORMAT
```

L88 ANSWER 9 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2000:122710 HCAPLUS Full-text
DOCUMENT NUMBER: 132:271133
TITLE: Relaxation of photodarkening in SiO-As₂(S,Se)₃
composite layers
AUTHOR(S): Indutnyi, I. Z.; Shepeliavyi, P. E.; Indutnyi, V.
I.
CORPORATE SOURCE: Institute of Semiconductor Physics of NASU, Kiev,
252028, Ukraine
SOURCE: Fizika Napivprovidnikov, Kvantova ta
Optoelektronika (1999), 2(2), 59-63
CODEN: FNKOF7; ISSN: 1560-8034
PUBLISHER: Natsional'na Akademiya Nauk Ukraini, Institut
Fiziki Napivprovidnikov
DOCUMENT TYPE: Journal
LANGUAGE: English

```
ED Entered STN: 23 Feb 2000
AB Investigated in this work is the reversible photostimulated red absorption
edge shift (photodarkening),  $\Delta E_g$ , of  $As_2(S,Se)_3$  nanoparticles embedded into
the  $SiO$  matrix. As compared to continuous chalcogenide films, the remarkable
 $\Delta E_g$  increase (up to 4 times) with decreasing of chalcogenide particle sizes in
composite  $SiO-As_2(S,Se)_3$  layers was revealed. The exponential dependence of
 $\Delta E_g$  on storing time at different temps. has been obtained. An activation
energy of the transition of  $As_2S_3$  nanoparticles structure from a metastable
photoexposed state to a ground annealed state is equal to  $0.78 \pm 0.06$  eV. The
effects are related to a spatial confinement of a photoexcited carrier
diffusion length and an influence of particle sizes on intermediate-range
order scale structure relaxation in the chalcogenide nanoparticles.
IT 113443-18-8, Silicon oxide ( $SiO$ )
(matrix; relaxation of photodarkening in  $SiO-As_2(S,Se)_3$  composite
layers)
RN 113443-18-8 HCAPLUS
CN Silicon oxide ( $SiO$ ) (CA INDEX NAME)
```

Component	Ratio	Component Registry Number
=====	=====	=====

10/721,280

O		1		17778-80-2
Si		1		7440-21-3

CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
 Section cross-reference(s): 66, 74

IT Particle size
 (effect on relaxation of photodarkening in SiO-As₂(S,Se)₃ composite layers)

IT Composites
 Electron transfer
 Nanoparticles
 Photochemistry
 UV and visible spectra
 (relaxation of photodarkening in SiO-As₂(S,Se)₃ composite layers)

IT 113443-18-8, Silicon oxide (SiO)
 (matrix; relaxation of photodarkening in SiO-As₂(S,Se)₃ composite layers)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:118321 HCAPLUS Full-text

DOCUMENT NUMBER: 132:282873

TITLE: The nucleation and growth mechanisms of Si-N-O fibers

AUTHOR(S): Ewing, H.; Vital, A.; Vogt, U.; Hendry, A.

CORPORATE SOURCE: Swiss Federal Laboratories for Materials Testing and Research, Dubendorf, Switz.

SOURCE: Materials Science Forum (2000), 325-326(Nitrides and Oxynitrides), 37-42
 CODEN: MSFOEP; ISSN: 0255-5476

PUBLISHER: Trans Tech Publications Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 20 Feb 2000

AB Amorphous Si oxynitride fibers (Si-N-O) were grown in a horizontal tube furnace on a SiC substrate at 1450° by exposing a stoichiometric precursor powder mixture of SiO₂ + SiC with 10%Ti to flowing NH₃(g) for 4 h. The reaction occurs via a 2 stage reaction sequence involving the formation of SiO(g) and subsequent nitridation performed by NH_x (1 ≤ x ≤ 3) species. Nucleation probably occurs as the result of the reaction between adsorbed NH_x species and SiO(g) produced by the reaction of SiO₂ and SiC. The residence time of the reactants is increased owing to the high surface activity of the NH_x species and the geometry of the powder bed. Longitudinal fiber growth is believed to take place at the fiber terminus via a vapor solid mechanism. The maximum fiber length is dictated by furnace dimensions. Radial growth probably is occurring by means of a CVD process.

IT 113443-18-8, Silicon oxide (SiO)
 (nucleation and growth mechanisms of SiO fibers)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component		Ratio		Component
				Registry Number
O		1		17778-80-2
Si		1		7440-21-3

CC 57-2 (Ceramics)
 Section cross-reference(s): 66, 75

ST nucleation growth amorphous silicon oxynitride fiber furnace
 stoichiometry; silicon carbide substrate silica titanium ammonia gas
 oxynitride fiber; nitridation adsorbed specie residence time
 oxynitride fiber; chem vapor deposition silicon oxynitride fiber

IT Adsorbed substances
 Composition
 Crystallization
 Furnaces
 Nitriding
 Nucleation
 Residence time
 Stoichiometry
 Surface activity
 Vapors
 (nucleation and growth mechanisms of SiO fibers)

IT 113443-18-8, Silicon oxide (SiO)
 (nucleation and growth mechanisms of SiO fibers)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L88 ANSWER 11 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:684088 HCAPLUS Full-text

DOCUMENT NUMBER: 132:42137

TITLE: Gas phase and particle diagnostic of HMDSO plasmas
 by infrared absorption spectroscopy

AUTHOR(S): Courteille, C.; Magni, D.; Deschenaux, C.;
 Howling, A. A.; Hollenstein, C.; Fayet, P.

CORPORATE SOURCE: Centre de Recherches en Physique des Plasmas,
 Ecole Polytechnique Federale de Lausanne,
 Lausanne, Switz.

SOURCE: Annual Technical Conference Proceedings - Society
 of Vacuum Coaters (1998), 41st, 327-332
 CODEN: ATCCDI; ISSN: 0731-1699

PUBLISHER: Society of Vacuum Coaters

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 28 Oct 1999

AB FTIR spectroscopy was applied to a radiofrequency discharge in
 hexamethyldisiloxane (HMDSO) diluted with oxygen and helium as typically used
 for industrial SiOx deposition. By measuring the IR absorption of the HMDSO
 mol. the gas consumption during processing can be monitored allowing process
 optimization. Addnl. information on various IR active radicals formed within
 the plasma, such as CO, CO2 and aldehydes, helps to elucidate the still
 unknown plasma chemical in HMDSO plasmas. Besides information on gaseous
 components in the plasma, IR transmission spectra give at the same time
 important data on the nature of the particle contamination, which is a known
 problem in these plasmas. The particle compn. can be determined by fitting
 the observed characteristic IR absorption lines from optical consts. of
 appropriate particle materials. Also, in combination with the Mie scattering
 component of the IR beam in the spectra, the particle size and particle number
 d. can be determined. The obtained results for the particle size and
 composition are confirmed by ex-situ electron microscopy studies and EELS.
 The shape of the absorption lines allows us to draw some indications on the
 state of agglomeration of the particles.

IT 113443-18-8, Silicon oxide (SiO)
 (particles formed in hexamethyldisiloxane/oxygen/helium plasma)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O	1	17778-80-2
Si	1	7440-21-3

CC 73-3 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 75, 76

IT Light scattering
Nanoparticles**Particle size**(IR Mie scattering of particles formed in
hexamethyldisiloxane/oxygen/helium plasma)IT 114823-39-1, Silicon oxide (SiO_{0.9}) 126414-42-4, Silicon oxide
(SiO_{0.4})(amorphous particles formed in
hexamethyldisiloxane/oxygen/helium plasma)IT 7631-86-9, Silica, properties 113443-18-8, Silicon oxide
(SiO)

(particles formed in hexamethyldisiloxane/oxygen/helium plasma)

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L88 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:125234 HCAPLUS Full-text

DOCUMENT NUMBER: 130:303497

TITLE: Strong visible photoluminescence in
amorphous SiO_x and SiO_x:H thin films
prepared by thermal evaporation of SiO powder

AUTHOR(S): Rinnert, H.; Vergnat, M.; Marchal, G.; Burneau, A.

CORPORATE SOURCE: (U.M.R. au C.N.R.S. No. 7556), Laboratoire de
Physique des Materiaux, B.P. 239, Universite Henri
Poincare Nancy 1, Vandoeuvre-les-Nancy, 54506, Fr.SOURCE: Journal of Luminescence (1999), Volume
Date 1998, 80(1-4), 445-448
CODEN: JLUMA8; ISSN: 0022-2313

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 25 Feb 1999

AB Amorphous SiO_x and SiO_x : H films were prepared by thermal evaporation of SiO
powder in ultrahigh vacuum or under a flow of hydrogen ions onto Si substrates
maintained at 100°. Photoluminescence (PL) can be seen in the visible range
with the naked eye on the as-deposited samples without post-treatments.
Composition and structure studies were performed by IR and Raman spectrometry
expts. on films annealed at different temps. H and O bonding was studied by
IR spectrometry. The PL is attributed to the quantum confinement of excitons
in a-Si clusters embedded in the a-SiO_x matrix. The authors' results
demonstrate that O creates an efficient potential barrier and no further
passivation by H is necessary.IT 113443-18-8, Silicon monoxide
(strong visible photoluminescence in amorphous SiO_x and
SiO_x:H thin films prepared by thermal evaporation of SiO powder)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

10/721,280

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

CC .73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST visible luminescence **amorphous** silicon oxide hydrogenated; thin film thermal evapn oxide powder

IT Annealing
Exciton
IR spectra
Luminescence
Quantum size effect
Raman spectra
(strong visible photoluminescence and spectral properties of **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder)

IT Passivation
(strong visible photoluminescence in **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder and effect of hydrogen passivation)

IT Evaporation
(thermal; strong visible photoluminescence and spectral properties of **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder)

IT 17778-80-2, Oxygen(atomic), uses
(barrier created by; strong visible photoluminescence in **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder in relation to)

IT 1333-74-0, Hydrogen, uses
(passivation by; strong visible photoluminescence in **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder and effect of hydrogen passivation)

IT 12385-13-6, Hydrogen(atomic), occurrence
(strong visible photoluminescence in **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder)

IT 7631-86-9DP, Silicon dioxide, non-stoichiometric
(strong visible photoluminescence in **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder)

IT 113443-18-8, Silicon monoxide
(strong visible photoluminescence in **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder)

IT 1333-74-0D, Hydrogen, ions, uses
(strong visible photoluminescence in **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder under flow of hydrogen ions)

IT 7631-86-9, Silicon dioxide, uses
(substrate; strong visible photoluminescence in **amorphous** SiOx and SiOx:H thin films prepared by thermal evaporation of SiO powder)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 13 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:194976 HCAPLUS Full-text

DOCUMENT NUMBER: 128:233849

TITLE: Vaporization-source method for reactive deposition of nanocrystalline materials and multiphase

INVENTOR(S): composites
Eastman, Jeffrey A.; Rittner, Mindy N.; Youngdahl,
Carl J.; Weertman, Julia R.
PATENT ASSIGNEE(S): United States Dept. of Energy, USA
SOURCE: U.S., 9 pp., Cont. of U. S. Ser. No. 402,999,
abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5728195	A	19980317	US 1997-801672	19970218

PRIORITY APPLN. INFO.: US 1995-402999 B1 19950310
<--

ED Entered STN: 03 Apr 1998

AB The multi-component nanocryst. and nanophase materials are deposited by: (a) simultaneously vaporizing by electron-beam heating of Ti, Fe, Co, Ni, Cu, Zr, Pd, Ag, Pt, Au, Zn, W, Mo, Cr, Mg, Mn, Ir, Nb, Al, Si, and/or Ge under inert atmospheric; (b) reacting the mixed vapors in a controlled atmospheric containing suitable reactive gases; (c) condensing the mixed reaction products and residual metals to form nanocryst. **powders**; and (d) compressing (or hot-press bonding) the **powder** mixture to form a dense nanocryst. metal, alloy, composite, or ceramic. The resulting multicomponent and multiphase materials typically have the **grain size** of 1-100 nm. The process was applied to vaporize Cu and Si in He-O₂ gas mixture controlled for the oxidation of Si, resulting in the nanoscale Cu-SiO_x composite with higher content of Si oxide than .apprx.15 weight% obtained conventionally by internal oxidation

IT 113443-18-8, Silicon oxide (SiO)
(composites with, nanoscale; vaporization with reactive deposition
of nanoscale powders or multiphase composites)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

IC ICM B22F001-00

ICS B22F009-00

INCL 075351000

CC 56-4 (Nonferrous Metals and Alloys)

Section cross-reference(s): 57

IT Composites

Powders

(nanoscale; vaporization from multiple sources for reactive
deposition of nanoscale powders or multiphase composites)

IT 1308-38-9, Chromium oxide (Cr₂O₃), uses 1309-37-1, Iron oxide
(Fe₂O₃), uses 1309-48-4, Magnesia, uses 1313-99-1, Nickel oxide
(NiO), uses 1314-13-2, Zinc oxide (ZnO), uses 1314-23-4, Zirconia,
uses 1314-36-9, Yttria, uses 1317-61-9, Iron oxide (Fe₃O₄), uses
1344-28-1, Alumina, uses 1345-25-1, Iron oxide (FeO), uses
7631-86-9, Silica, uses 12018-00-7, Chromium oxide (CrO)
13463-67-7, Titania, uses 113443-18-8, Silicon oxide (SiO)
(composites with, nanoscale; vaporization with reactive deposition

of nanoscale powders or multiphase composites)

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE
RE FORMAT

L88 ANSWER 14 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:51661 HCAPLUS Full-text

DOCUMENT NUMBER: 124:127934

TITLE: Brewster angle technique to study metal
nanoparticle distributions in dielectric matrixes
AUTHOR(S): Tognini, P.; Geddo, M.; Stella, A.; Cheyssac, P.;
Kofman, R.

CORPORATE SOURCE: Dip. Fis. "A. Volta", Univ. degli Studi di Pavia,
Pavia, 27100, Italy

SOURCE: Journal of Applied Physics (1996),
79(2), 1032-9

CODEN: JAPIAU; ISSN: 0021-8979

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 25 Jan 1996

AB The authors report exptl. results obtained by the Brewster angle technique on
samples constituted by Pb and Sn nanoparticles embedded in an **amorphous** SiO
matrix. The extended comparison with different effective medium models gives
clear indications on (i) the structural **composition** of the samples and (ii)
the spatial distribution of the metallic **particles** in these systems, pointing
to a quasi-two-dimensional arrangement.

IT 113443-18-8, Silicon oxide (SiO)

(Brewster angle determination of lead and tin nanoparticle distributions in
amorphous silicon monoxide matrix)

RN 113443-18-8 HCAPLUS

CN Silicon oxide (SiO) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
=====	=====	=====
O	1	17778-80-2
Si	1	7440-21-3

CC 66-5 (Surface Chemistry and Colloids)
Section cross-reference(s): 56, 57; 73

IT Distribution function

Infrared spectrometry

(Brewster angle determination of lead and tin nanoparticle distributions in
amorphous silicon monoxide matrix)

IT Particles

(nano-, Brewster angle determination of lead and tin nanoparticle
distributions in **amorphous** silicon monoxide matrix)

IT 7439-92-1, Lead, properties 7440-31-5, Tin, properties

(Brewster angle determination of lead and tin nanoparticle distributions in
amorphous silicon monoxide matrix)

IT 113443-18-8, Silicon oxide (SiO)

(Brewster angle determination of lead and tin nanoparticle distributions in
amorphous silicon monoxide matrix)

L88 ANSWER 15 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1993:433058 HCAPLUS Full-text

DOCUMENT NUMBER: 119:33058

TITLE: High-performance multilayer capacitor dielectrics
from chemically prepared powders

AUTHOR(S): Bruno, Salvatore A.; Swanson, Donald K.; Burn, Ian
 CORPORATE SOURCE: Jackson Lab., Du Pont Chem., Deepwater, NJ, 08023,
 USA

SOURCE: Journal of the American Ceramic Society (
 1993), 76(5), 1233-41
 CODEN: JACTAW; ISSN: 0002-7820

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 24 Jul 1993

AB Advantages of chemical prepared **powders** for electronic ceramics have been demonstrated for a number of multilayer capacitor (MLC) dielects. A cost-efficient precipitation process is presented to prepare undoped or doped crystalline barium titanate **powder** with a narrow **particle size** distribution close to 0.5 μm . More complex **compns.**, e.g., barium neodymium titanate, were **amorphous** as precipitated but could be crystallized by calcination at $<1000^\circ$. Addnl. **compositional** modifications, to adjust elec. properties or to lower sintering temperature, were accomplished by doping the surface of the **powder particles** using a solution coating process. Exceptional fired densities and elec. performance were obtained.

IT 11126-22-0P, Silicon oxide
 (dopants, dielec. powder coated with, preparation of, for
 high-performance multilayer capacitors)

RN 11126-22-0 HCAPLUS

CN Silicon oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Si	x	7440-21-3

CC 57-2 (Ceramics)

Section cross-reference(s): 76

IT 11099-02-8P, Nickel oxide 11126-22-0P, Silicon oxide
 11129-60-5P, Manganese oxide 12627-00-8P, Niobium oxide
 12648-30-5P, Neodymium oxide

(dopants, dielec. powder coated with, preparation of, for
 high-performance multilayer capacitors)

L88 ANSWER 16 OF 16 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1972:532610 HCAPLUS Full-text

DOCUMENT NUMBER: 77:132610

ORIGINAL REFERENCE NO.: 77:21797a,21800a

TITLE: Optical and bonding model for noncrystalline SiO_x
 and SiO_xNy materials

AUTHOR(S): Philipp, Herbert R.

CORPORATE SOURCE: Gen. Electr. Corp. Res. Dev., Schenectady, NY, USA

SOURCE: Journal of Non-Crystalline Solids (1972
), 8-10, 627-32

CODEN: JNCSBJ; ISSN: 0022-3093

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 12 May 1984

AB Optical data for noncryst. SiO_x materials are presented and analyzed for the energy region 1-26 eV. **Amorphous** substances of all intermediate **compns.** between Si and SiO₂ can be formed, and these materials are not simple mixts. of **particles** of Si and SiO₂, but rather the 2-atom species are blended on an atomic scale. The basic units of this structure are Si tetrahedra (perhaps highly distorted) of the type Si-(Si_yO_{4-y}) in which the distribution of atoms for all y = 0-4 is statistical for any given atom ratio. The optical

properties of these layers are determined by the presence and grouping of Si-Si and Si-O bonds; clusters of like bonds of the dimension of a Si-(Si₄) or Si-(O₄) tetrahedron have optical properties comparable to those exhibited by amorphous Si or quartz, resp., "in bulk."

IT 11126-22-0

(optical properties of, bonding model in relation to)

RN 11126-22-0 HCAPLUS

CN Silicon oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
Si	x	7440-21-3

CC 73-2 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)

ST optical property silicon oxide; bonding silicon oxide;
amorphous silicon oxide bonding

IT 11105-01-4 11126-22-0

(optical properties of, bonding model in relation to)

=> d que 189

L1 1 SEA FILE=HCAPLUS ABB=ON PLU=ON US20040106040/PN
 L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-21-3/RN
 L4 5231 SEA FILE=REGISTRY ABB=ON PLU=ON (SI(L)O)/ELS(L)2-3/ELC.SU
 B
 L5 5231 SEA FILE=REGISTRY ABB=ON PLU=ON L4 AND L4
 L7 274031 SEA FILE=REGISTRY ABB=ON PLU=ON (SI(L)O(L)C)/ELS(L)4/ELC.
 SUB
 L9 1776 SEA FILE=REGISTRY ABB=ON PLU=ON L5 NOT 1.7-100/O
 L10 1095 SEA FILE=REGISTRY ABB=ON PLU=ON L9 NOT 0-0.9999/O
 L11 466 SEA FILE=REGISTRY ABB=ON PLU=ON L10 AND TIS/CI
 L12 334 SEA FILE=REGISTRY ABB=ON PLU=ON L11 NOT 1-100/M
 L13 97 SEA FILE=REGISTRY ABB=ON PLU=ON L12 AND 2/ELC.SUB
 L14 247430 SEA FILE=REGISTRY ABB=ON PLU=ON L7 NOT PMS/CI
 L15 46678 SEA FILE=REGISTRY ABB=ON PLU=ON L14 NOT 1-100/NR
 L16 QUE ABB=ON PLU=ON PARTICL? OR MICROPARTICL? OR PARTICU
 LAT? OR DUST? OR GRIT? OR GRAIN# OR GRANUL? OR POWDER? OR
 SOOT? OR SMUT? OR FINES# OR PRILL? OR FLAKE# OR PELLET
 L17 QUE ABB=ON PLU=ON MU OR M(A)U OR MICRON OR MICROMETER
 OR MICRO(W)METER OR NANOMETER OR NANO(W)METER OR NM OR
 N(A)M OR MM OR M(A)M
 L18 QUE ABB=ON PLU=ON BATTERY OR BATTERIES
 L19 483078 SEA FILE=HCAPLUS ABB=ON PLU=ON L3
 L20 7485 SEA FILE=HCAPLUS ABB=ON PLU=ON L13
 L23 QUE ABB=ON PLU=ON NEGATIVE? ELECTROD# OR ANOD## OR NEG
 ?(A)ELECTROD#
 L24 2249 SEA FILE=HCAPLUS ABB=ON PLU=ON L23(L)L19
 L25 151 SEA FILE=HCAPLUS ABB=ON PLU=ON L20(L)L23
 L26 641795 SEA FILE=HCAPLUS ABB=ON PLU=ON L16(L)(SIZE# OR DIAMETER?
 DIAMETRE? OR RADIUS OR RADII OR DIMENSION? OR WIDTH? OR
 WIDENESS?)
 L27 438763 SEA FILE=HCAPLUS ABB=ON PLU=ON L16(2A)(SIZE# OR DIAMETER?
 DIAMETRE? OR RADIUS OR RADII OR DIMENSION? OR WIDTH? OR
 WIDENESS?)
 L28 77 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 AND L27
 L30 62 SEA FILE=HCAPLUS ABB=ON PLU=ON L28 AND L17
 L31 19057 SEA FILE=HCAPLUS ABB=ON PLU=ON "BATTERY ANODES"+PFT,NT/CT

 L32 51 SEA FILE=HCAPLUS ABB=ON PLU=ON L30 AND L31
 L34 388495 SEA FILE=HCAPLUS ABB=ON PLU=ON "COATING MATERIALS"+PFT,NT
 /CT
 L35 19 SEA FILE=HCAPLUS ABB=ON PLU=ON L24 AND L31 AND L34
 L40 QUE ABB=ON PLU=ON (NONAQUEOUS OR NONAQ# OR NON(A)(AQ#
 OR AQUEOUS?))(2A)ELECTROLYT?
 L41 10 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND L40
 L42 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L35 AND L40
 L43 15 SEA FILE=HCAPLUS ABB=ON PLU=ON L41 OR L42
 L44 65 SEA FILE=HCAPLUS ABB=ON PLU=ON L25 AND L40
 L45 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L44 AND L26
 L46 246 SEA FILE=HCAPLUS ABB=ON PLU=ON L20 AND L26
 L47 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND L40
 L48 163 SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND L17
 L49 4 SEA FILE=HCAPLUS ABB=ON PLU=ON L48 AND L23
 L50 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L45 OR L47 OR L49
 L51 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND L40
 L52 5 SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND L46
 L53 7 SEA FILE=HCAPLUS ABB=ON PLU=ON (L50 OR L51 OR L52)
 L54 49 SEA FILE=HCAPLUS ABB=ON PLU=ON L46 AND AMORPH?

10/721,280

L57	8	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L46 AND L18
L58	144234	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	COMPOSITES+PFT,NT/CT
L59	9	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L46 AND L58
L60	9	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L54 AND (L58 OR COMPOSIT?)
L61	24	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L57 OR L59 OR L60
L62	25	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L53 OR L61
L63	91757	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L15
L64	91757	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L15
L65	4958	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L64 AND (L19 OR L20)
L67	7	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L65 AND (LI OR LITHIUM) (2A) ION?
L68	35	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L65 AND (L18 OR L31)
L69	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND SURFACE TREAT?
L70	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND SURFACE (2A) TREAT?
L71	3	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L68 AND L40
L72	11	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L67 OR (L69 OR L70 OR L71)
L74	30700	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	"DISPERSION (OF MATERIALS) "+PFT,NT/CT
L75	0	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L62 AND L74
L76	25	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L62 OR L75
L77	126	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L63 AND (LI OR LITHIUM) (2A) ION#
L78	12	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND L40
L79	6	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND ANOD## (2A) ACTIV?
L80	7	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L77 AND (CONDUCT? (A) COAT? OR L34)
L81	29	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L72 OR (L78 OR L79 OR L80)
L82	10	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L81 AND COAT?
L83	8	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L43 AND (1840-2003)/PRY,AY , PY
L84	16	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L76 AND (1840-2003)/PRY,AY , PY
L85	10	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L82 AND (1840-2003)/PRY,AY , PY
L86	1	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L1 AND (L83 OR L84 OR L85)
L89	9	SEA FILE=HCAPLUS	ABB=ON	PLU=ON	L85 NOT L86

=> d 189 1-9 ibib ed abs hitstr hitind

L89 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2005:371541 HCAPLUS Full-text
 DOCUMENT NUMBER: 142:414575
 TITLE: Ceramic separator for electrochemical cells with
 improved conductivity
 INVENTOR(S): Hennige, Volker; Hying, Christian; Hoerpel,
 Gerhard
 PATENT ASSIGNEE(S): Degussa Ag, Germany
 SOURCE: PCT Int. Appl., 40 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

10/721,280

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005038946	A2	20050428	WO 2004-EP51844	20040819
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WO 2005038946	A3	20060216		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10347566	A1	20050512	DE 2003-10347566	20031014
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EP 1673822	A2	20060628	EP 2004-766544	20040819
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R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
CN 1868077	A	20061122	CN 2004-80030168	20040819
<--				
JP 2007508670	T	20070405	JP 2006-534732	20040819
<--				
KR 2007019952	A	20070216	KR 2006-707115	20060413
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PRIORITY APPLN. INFO.:			DE 2003-10347566	A 20031014
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			WO 2004-EP51844	W 20040819

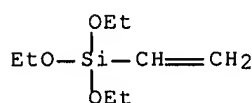
ED Entered STN: 29 Apr 2005

AB Disclosed is a separator for an electrochem. cell, comprising a flexible, broken support with a ceramic coating which is provided in the support and contains 75 to 99 ppm of oxide particles, selected among ZrO₂, SiO₂, and Al₂O₃ particles, and 1 to 25 ppm of zeolite particles. The inventive separators have a significantly improved ion conductivity after being filled with an electrolyte and are to be used especially as separators in lithium-ion batteries.

IT 78-08-0, Vinyltriethoxysilane 78-10-4,
 Tetraethoxysilane 1067-53-4, Vinyltris(2-
 methoxyethoxy)silane 2031-67-6, Methyltriethoxysilane
 2530-85-0 2768-02-7, Vinyltrimethoxysilane
 (ceramic separator for electrochem. cells with improved conductivity)

RN 78-08-0 HCAPLUS

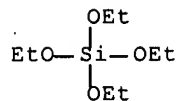
CN Silane, ethenyltriethoxy- (CA INDEX NAME)



RN 78-10-4 HCAPLUS

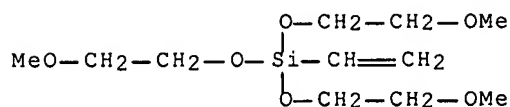
10/721,280

CN Silicic acid (H₄SiO₄), tetraethyl ester (CA INDEX NAME)



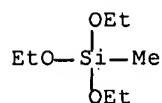
RN 1067-53-4 HCAPLUS

CN 2,5,7,10-Tetraoxa-6-silaundecane, 6-ethenyl-6-(2-methoxyethoxy)- (CA INDEX NAME)



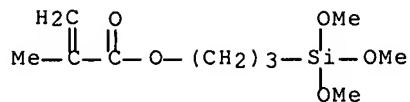
RN 2031-67-6 HCAPLUS

CN Silane, triethoxymethyl- (CA INDEX NAME)



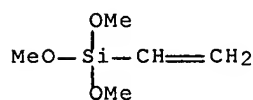
RN 2530-85-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester (CA INDEX NAME)



RN 2768-02-7 HCAPLUS

CN Silane, ethenyltrimethoxy- (CA INDEX NAME)



IC ICM H01M
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 57
 IT Adhesives
 Bubble point
 Ceramic coatings
 Secondary battery separators
 (ceramic separator for electrochem. cells with improved conductivity)
 IT 78-08-0, Vinyltriethoxysilane 78-10-4,
 Tetraethoxysilane 919-30-2, 3-Aminopropyltriethoxysilane
 1067-53-4, Vinyltris(2-methoxyethoxy)silane 1760-24-3,
 n-2-Aminoethyl-3-aminopropyltrimethoxysilane 2031-67-6,
 Methyltriethoxysilane 2530-83-8, (3-Glycidyloxypropyl)trimethoxysila
 ne 2530-85-0 2768-02-7, Vinyltrimethoxysilane
 (ceramic separator for electrochem. cells with improved conductivity)

L89 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:204072 HCAPLUS Full-text

DOCUMENT NUMBER: 142:414422

TITLE: Preparation of electrodes for lithium-
 ion batteries

INVENTOR(S): Zhou, Henghui; Chen, Jitao; Sun, Jie

PATENT ASSIGNEE(S): Advanced Science and Technology Enterprises Co.,
 Ltd., Beijing University, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 12
 PP.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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CN 1485940	A	20040331	CN 2003-153874	20030826
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PRIORITY APPLN. INFO.:			CN 2003-153874	20030826
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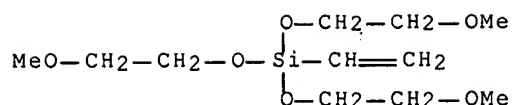
ED Entered STN: 08 Mar 2005

AB The electrodes are prepared by mixing active substances 85-98, conducting agents 0.5-10 and water-based adhesive 1.5-10%, adding H₂O to form slurry, coating the slurry on both sides of anode assembly with Al foil, or cathode assembly with Cu foil, and rolling to form a sheet. The water-based adhesive is prepared by mixing thickening agents (CMC, EMC, HPMC Li salt or Na salt), tackifiers and additives (vinyl-tri(β -methoxyethoxy)silane, γ -aminopropyltriethoxy silane or N-dimethylamino-trimethoxy silane). The anode active substances are Li-containing transition metal oxides or phosphate salts. The cathode active substances are modified graphite or MCMB. The conductive agents are graphite or C black, or a mixture of both.

IT 1067-53-4, Vinyl-tri(β -methoxyethoxy)silane
 (adhesive containing; preparation of electrodes for lithium-
 ion batteries with)

RN 1067-53-4 HCAPLUS

CN 2,5,7,10-Tetraoxa-6-silaundecane, 6-ethenyl-6-(2-methoxyethoxy)- (CA
 INDEX NAME)



IC ICM H01M004-02
 ICS H01M004-62; H01M004-48; H01M004-58; H01M004-04; H01M010-38;
 H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium ion battery electrode adhesive
 IT Carbon black, uses
 (in preparation of lithium-ion batteries)
 IT Secondary batteries
 (lithium; preparation of electrodes for lithium-ion
 batteries)
 IT Battery electrodes
 (preparation of electrodes for lithium-ion
 batteries)
 IT Adhesives
 (water-thinned; in preparation of electrodes for lithium-
 ion batteries)
 IT 919-30-2, γ -Aminopropyltriethoxy silane 1067-53-4,
 Vinyl-tri(β -methoxyethoxy)silane 116228-47-8
 (adhesive containing; preparation of electrodes for lithium-
 ion batteries with)
 IT 7429-90-5, Aluminum, uses 7440-50-8, Copper, uses
 (in preparation of electrodes for lithium-ion
 batteries)
 IT 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses
 (in preparation of lithium-ion batteries)

L89 ANSWER 3 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:198217 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:220730
 TITLE: Method of fabrication of ion-conductive battery
 separator for lithium batteries.
 INVENTOR(S): Hennige, Volker; Hying, Christian; Hoerpel,
 Gerhard
 PATENT ASSIGNEE(S): Creavis Gesellschaft fuer Technologie und
 Innovation m.b.H., Germany
 SOURCE: Ger. Offen., 19 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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DE 10240032	A1	20040311	DE 2002-10240032	20020827
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CA 2496841	A1	20040311	CA 2003-2496841	20030721
			<--	
WO 2004021477	A1	20040311	WO 2003-EP7933	20030721
			<--	

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,

10/721,280

CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ,
LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,
SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,
ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG

AU 2003250125 A1 20040319 AU 2003-250125 20030721

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EP 1532701 A1 20050525 EP 2003-790805 20030721

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EP 1532701 B1 20060104

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

CN 1679185 A 20051005 CN 2003-820566 20030721

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JP 2005536860 T 20051202 JP 2004-531810 20030721

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AT 315277 T 20060215 AT 2003-790805 20030721

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US 2006166085 A1 20060727 US 2004-519097 20041227

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IN 2004CN03105 A 20060217 IN 2004-CN3105 20041231

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PRIORITY APPLN. INFO.: DE 2002-10240032 A 20020827

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WO 2003-EP7933 W 20030721

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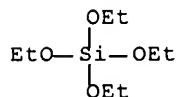
ED Entered STN: 11 Mar 2004

AB The invention concerns separators for lithium batteries as well as a procedure for their production and use. The separator is based on a laminar, flexible substrate with a plurality of openings. The substrate has a porous, inorg., elec. insulating coating, which closes the openings in the substrate. The material of the substrate is selected from woven or nonwoven, elec. nonconductive polymer fibers and the inorg. elec. **conductive coating** contains metallic oxide particle. The separator has Li-ion conducting characteristics without the presence electrolytes. After loading with addnl. Li- ion conductive electrolytes, a clearly higher ionic conduction is observed than in the case of conventional combinations of lithium ion conductive separators and electrolyte. The separators according to invention are especially suitable for application in lithium heavy-duty batteries.

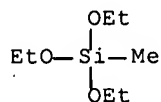
IT 78-10-4, Tetraethoxysilane 2031-67-6,
Methyltriethoxysilane 2768-02-7, Dynasylan Silfin
(method of fabrication of ion-conductive battery separator for lithium batteries.)

RN 78-10-4 HCAPLUS

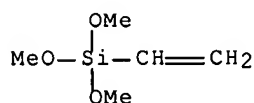
CN Silicic acid (H4SiO4), tetraethyl ester (CA INDEX NAME)



RN 2031-67-6 HCAPLUS
 CN Silane, triethoxymethyl- (CA INDEX NAME)



RN 2768-02-7 HCAPLUS
 CN Silane, ethenyltrimethoxy- (CA INDEX NAME)



IC ICM H01M002-14
 ICS H01M010-38
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 IT Coating materials
 Electric insulators
 Secondary battery separators
 (method of fabrication of ion-conductive battery separator for
 lithium batteries.)
 IT 78-10-4, Tetraethoxysilane 2031-67-6,
 Methyltriethoxysilane 2530-83-8, Dynasytan GLYMO 2768-02-7
 , Dynasytan Silfin
 (method of fabrication of ion-conductive battery separator for
 lithium batteries.)
 IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9,
 Silica, uses
 (particles, coating; method of fabrication of
 ion-conductive battery separator for lithium batteries.)

L89 ANSWER 4 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:177932 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:202443
 TITLE: Procedure for the production of a separator, in
 particular for lithium ion
 batteries
 INVENTOR(S): Hennige, Volker; Hying, Christian; Hoerpel,
 Gerhard
 PATENT ASSIGNEE(S): Creavis Gesellschaft fuer Technologie Und
 Innovation m.b.H., Germany
 SOURCE: Ger. Offen., 15 pp.
 CODEN: GWXXBX
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10238940	A1	20040304	DE 2002-10238940	20020824
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WO 2004021474	A1	20040311	WO 2003-EP7155	20030704
			<--	

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003249954	A1	20040319	AU 2003-249954	20030704
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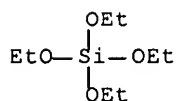
DE 2002-10238940	A	20020824
		<--
WO 2003-EP7155	W	20030704
		<--

ED Entered STN: 04 Mar 2004

AB The invention concerns a procedure for the production of separators, especially elec. separators, as well as separators. Elec. separator is used in batteries and other devices, in which electrodes (under maintenance of ionic conductivity) are separated from each other. The separator is preferably a thin, porous, insulating material with high ion permeability, good mech. firmness and long-term stability towards, e.g., in the chems. and solvent of the electrolyte used. It is to isolate elec. completely the cathode in batteries from the anode. In addition, it must be permanently flexible and follow the movements in the system, e.g. in the electrode package when charging and discharging. This task is solved by the procedure according to invention, with a substrate provided with a porous ceramic coating, whereby the coating process is so controlled that the substrate is led with a maximum strain in longitudinal direction of 10 N/cm. By this measure the coating attains a definitely higher durability than the conventional separators, since a deformation, especially elastic or plastic deformation, and a shrinkage of the substrate material are avoided as far as possible.

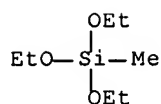
IT 78-10-4, Teos 2031-67-6, Methyl triethoxy silane
(procedure for production of separator especially for lithium ion batteries)

RN 78-10-4 HCAPLUS

CN Silicic acid (H₄SiO₄), tetraethyl ester (CA INDEX NAME)

RN 2031-67-6 HCAPLUS

CN Silane, triethoxymethyl- (CA INDEX NAME)



IC ICM H01M002-14
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 47
 IT Secondary batteries
 (lithium; procedure for production of separator especially for
 lithium ion batteries)
 IT Ceramic coatings
 Secondary battery separators
 Separators
 (procedure for production of separator especially for lithium
 ion batteries)
 IT Acrylic fibers, uses
 Polyester fibers, uses
 Polyolefin fibers
 Synthetic polymeric fibers, uses
 (procedure for production of separator especially for lithium
 ion batteries)
 IT 78-10-4, Teos 2031-67-6, Methyl triethoxy silane
 2530-83-8, Dynasylan GLYMO
 (procedure for production of separator especially for lithium
 ion batteries)
 IT 1314-23-4, Zirconium oxide, uses 1344-28-1, Alumina, uses
 7631-86-9, Silica, uses
 (procedure for production of separator especially for lithium
 ion batteries)

L89 ANSWER 5 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:736751 HCAPLUS Full-text

DOCUMENT NUMBER: 137:265677

TITLE: Method for fabrication of rechargeable
 lithium-ion battery cells

INVENTOR(S): Zhang, Zhiwei; Park, Chi-Kyun; Sun, Lu Ying; Chai,
 Chul

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 5 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	-----
US 2002136957	A1	20020926	US 2001-766672	20010123
			<--	
US 6547839	B2	20030415		
KR 2002062684	A	20020729	KR 2002-420	20020104
			<--	
PRIORITY APPLN. INFO.:			US 2001-766672	A 20010123
			<--	

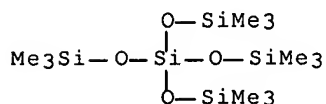
ED Entered STN: 27 Sep 2002

AB Lithium-ion electrochem. cells include an anode, a cathode and a separator between the anode and cathode, wherein at least one of the anode, cathode and separator includes a polysiloxane coating thereon. Most preferably, the polysiloxane coating is the polymerized reaction product of di-Me siloxane and tetra(trimethylsiloxy)silane, and is present on the surface in an amount between about 0.05 to about 0.17 mg/cm². After being coated with the polysiloxane adhesive, the electrodes and separator can easily be attached one to another at ambient temperature by application of pressure using a hand roller or with a laminator, and then subsequently formed into a spiral or stacked structure for placement in a battery cell case.

IT 3555-47-3, Tetrakis(trimethylsiloxy)silane
(adhesive; method for fabrication of rechargeable lithium-ion battery cells)

RN 3555-47-3 HCAPLUS

CN Trisiloxane, 1,1,1,5,5,5-hexamethyl-3,3-bis[(trimethylsilyl)oxy]- (CA INDEX NAME)



IC ICM H01M002-16
ICS H01M002-08

INCL 429246000; X42-914.4; X42-918.5; X2-962.35

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

IT Polysiloxanes, uses
(adhesive; method for fabrication of rechargeable lithium-ion battery cells)

IT Secondary batteries
(lithium; method for fabrication of rechargeable lithium-ion battery cells)

IT Coating materials
(method for fabrication of rechargeable lithium-ion battery cells)

IT Adhesives
(polysiloxane, coating; method for fabrication of rechargeable lithium-ion battery cells)

IT Battery anodes
Battery cathodes
Secondary battery separators
(polysiloxane-coated; method for fabrication of rechargeable lithium-ion battery cells)

IT Coating process
(spray; method for fabrication of rechargeable lithium-ion battery cells)

IT 3555-47-3, Tetrakis(trimethylsiloxy)silane 9016-00-6,
Dimethylsiloxane
(adhesive; method for fabrication of rechargeable lithium-ion battery cells)

IT 9003-07-0, Polypropylene
(separator; method for fabrication of rechargeable lithium-ion battery cells)

IT 67-64-1, Acetone, uses 78-93-3, Butanone, uses 108-88-3, Toluene,

uses 109-99-9, Thf, uses 123-91-1, Dioxane, uses 1330-20-7,
Xylene, uses
(solvent; method for fabrication of rechargeable lithium-
ion battery cells)

L89 ANSWER 6 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:89087 HCAPLUS Full-text

DOCUMENT NUMBER: 134:268680

TITLE: Si-O network encapsulated graphite-silicon
mixtures as negative electrodes for
lithium-ion batteries

AUTHOR(S): Ng, S. B.; Lee, J. Y.; Liu, Z. L.

CORPORATE SOURCE: Department of Chemical and Environmental
Engineering, National University of Singapore,
Singapore, 119260, Singapore

SOURCE: Journal of Power Sources (2001), 94(1),
63-67

CODEN: JPSODZ; ISSN: 0378-7753

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 07 Feb 2001

AB Graphite-silicon mixts. are encapsulated in a Si-O network derived from sol-gel transformation of alkoxy-silane(methyltrimethoxysilane). The composites are characterized by powder X-ray diffraction and SEM. The catalyst used in the sol-gel process significantly affects the electrochem. properties of the composites. The initial specific capacity of the composites is close to 500 mA h g⁻¹, which is between that of graphite alone (.apprx.300 mA h g⁻¹) and mech. mixts. of graphite and silicon of identical silicon contents (.apprx.900 mA h g⁻¹). Base (NH₄OH) catalyzed composites perform substantially better than acid (HCl) catalyzed composites. The exptl. results have yet to demonstrate any real advantage of the composites over graphite in terms of cycleability. Nevertheless, this approach should not be dismissed as the network material in this study may not have been optimized.

IT 7440-21-3, Silicon, uses
(si-O network encapsulated graphite-silicon mixts. as neg.
electrodes for lithium-ion batteries)

RN 7440-21-3 HCAPLUS

CN Silicon (CA INDEX NAME)

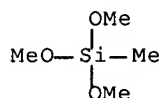
Si

IT 1185-55-3

(silicon-oxygen network encapsulated graphite-silicon mixts. as
neg. electrodes for lithium-ion batteries)

RN 1185-55-3 HCAPLUS

CN Silane, trimethoxymethyl- (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72

IT Sol-gel processing
 (coating; si-O network encapsulated graphite-silicon
 mixts. as neg. electrodes for lithium-ion
 batteries)

IT Secondary batteries
 (lithium; silicon-oxygen network encapsulated graphite-silicon
 mixts. as neg. electrodes for lithium-ion
 batteries)

IT Encapsulation
 (si-O network encapsulated graphite-silicon mixts. as neg.
 electrodes for lithium-ion batteries)

IT Battery anodes
 (silicon-oxygen network encapsulated graphite-silicon mixts. as
 neg. electrodes for lithium-ion batteries)

IT Coating process
 (sol-gel; si-O network encapsulated graphite-silicon mixts. as neg.
 electrodes for lithium-ion batteries)

IT 7440-21-3, Silicon, uses
 (si-O network encapsulated graphite-silicon mixts. as neg.
 electrodes for lithium-ion batteries)

IT 1185-55-3 7782-42-5, Graphite, uses
 (silicon-oxygen network encapsulated graphite-silicon mixts. as
 neg. electrodes for lithium-ion batteries)

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE
 RE FORMAT

L89 ANSWER 7 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2000:822805 HCAPLUS Full-text

DOCUMENT NUMBER: 133:352708

TITLE: Method of fabrication of protective sheet for
 solar battery module

INVENTOR(S): Yamada, Hiroshi; Ookawa, Koujiro; Suzuura, Yasuki;
 Goto, Takakazu; Arao, Hideki; Tsuzuki, Atsuo;
 Takasawa, Kazuyuki; Yamamoto, Hiroshi; Konno,
 Katsutoshi

PATENT ASSIGNEE(S): Dai Nippon Printing Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 116 pp.
 CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1054456	A2	20001122	EP 1999-125952	19991227
			<--	
EP 1054456	A3	20070103		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,				
PT, IE, SI, LT, LV, FI, RO, CY, AL, MK				
JP 2000188412	A	20000704	JP 1999-136110	19990517
			<--	
JP 2000332275	A	20001130	JP 1999-135688	19990517
			<--	
JP 2000332277	A	20001130	JP 1999-135888	19990517

			<--	
JP 2001007368	A	20010112	JP 1999-179533	19990625
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JP 2001036126	A	20010209	JP 1999-230611	19990817
			<--	
PRIORITY APPLN. INFO.:			JP 1999-135613	A 19990517
			<--	
			JP 1999-135688	A 19990517
			<--	
			JP 1999-135888	A 19990517
			<--	
			JP 1999-136110	A 19990517
			<--	
			JP 1999-179533	A 19990625
			<--	
			JP 1999-230611	A 19990817
			<--	
			JP 1998-290540	A 19981013
			<--	

ED Entered STN: 24 Nov 2000

AB A protective sheet for a solar battery module comprises a weather-resistant sheet of, for example, a fluorocarbon resin, and a deposited inorg. oxide thin film formed on one of the surfaces of the weather-resistant sheet. A surface-treated layer is formed in the weather-resistant sheet to enhance adhesion between the weather-resistant sheet and the deposited inorg. oxide thin film.

IT 7440-21-3, Silicon, uses
(method of fabrication of protective sheet for solar battery module)

RN 7440-21-3 HCAPLUS

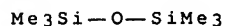
CN Silicon (CA INDEX NAME)

Si

IT 107-46-0, Hexamethyldisiloxane 1185-55-3, Methyl trimethoxysilane 2530-85-0
(method of fabrication of protective sheet for solar battery module)

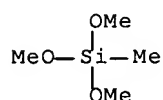
RN 107-46-0 HCAPLUS

CN Disiloxane, 1,1,1,3,3,3-hexamethyl- (CA INDEX NAME)

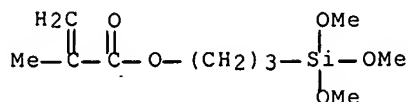


RN 1185-55-3 HCAPLUS

CN Silane, trimethoxymethyl- (CA INDEX NAME)



RN 2530-85-0 HCAPLUS
 CN 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester (CA
 INDEX NAME)



- IC ICM H01L031-048
- ICS H01L031-0216
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
- ST solar **battery** module fluorocarbon resin protective sheet
- IT Vapor deposition process
 (chemical; method of fabrication of protective sheet for solar
battery module)
- IT Polyolefins
 (cyclic; method of fabrication of protective sheet for solar
battery module)
- IT Polyesters, uses
 (hydroxy-terminated; method of fabrication of protective sheet for
 solar **battery** module)
- IT Polyurethanes, uses
 (laminating adhesives; method of fabrication of protective sheet
 for solar **battery** module)
- IT Coating materials
 Optical transmission
 Solar cells
 (method of fabrication of protective sheet for solar
battery module)
- IT Acrylic polymers, uses
 Fluoropolymers, uses
 Glass fibers, uses
 Oxides (inorganic), uses
 Polycarbonates, uses
 Polyesters, uses
 (method of fabrication of protective sheet for solar
battery module)
- IT Permeability
 (moisture; method of fabrication of protective sheet for solar
battery module)
- IT Vapor deposition process
 (phys.; method of fabrication of protective sheet for solar
battery module)
- IT Vapor deposition process
 (plasma; method of fabrication of protective sheet for solar
battery module)
- IT Epoxides
 (silyl; method of fabrication of protective sheet for solar
battery module)
- IT Coating materials
 (weather-resistant; method of fabrication of protective sheet for

IT solar battery module)
 95-14-7, 1H-Benzotriazole
 (UV absorber; method of fabrication of protective sheet for solar
 battery module)
 IT 7429-90-5, Aluminum, uses 7440-22-4, Silver, uses
 (film; method of fabrication of protective sheet for solar
 battery module)
 IT 7440-21-3, Silicon, uses
 (method of fabrication of protective sheet for solar
 battery module)
 IT 103-83-3, n,n-Dimethylbenzylamine 107-46-0,
 Hexamethyldisiloxane 1185-55-3, Methyl trimethoxysilane
 2269-22-9, Tri-sec-butoxyaluminum 2530-83-8 2530-85-0
 9002-89-5, Polyvinyl alcohol 11099-06-2, Ethyl silicate
 (method of fabrication of protective sheet for solar
 battery module)
 IT 1306-38-3, Cerium oxide ceo2, uses 1309-37-1, Ferric oxide, uses
 1314-13-2, Zinc oxide, uses 1344-28-1, Alumina, uses 7631-86-9,
 Silica, uses 13463-67-7, Titanium oxide, uses 18282-10-5, Tin
 dioxide 24937-78-8, Ethylene-vinyl acetate copolymer 24981-14-4,
 Polyvinyl fluoride 25038-59-9, Polyethylene terephthalate, uses
 25038-71-5, Ethylene-tetrafluoroethylene copolymer 25038-78-2,
 Polydicyclopentadiene 25568-84-7, Polycyclopentadiene 27859-77-4,
 Polynorbornadiene
 (method of fabrication of protective sheet for solar
 battery module)

L89 ANSWER 8 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:231861 HCAPLUS Full-text

DOCUMENT NUMBER: 130:299397

TITLE: Manufacture of coated carbon anodes for
 lithium ion secondary batteries

INVENTOR(S): Kawamoto, Koji

PATENT ASSIGNEE(S): Toyota Motor Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 11096995	A	19990409	JP 1997-257228	19970922
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JP 3924862	B2	20070606		
PRIORITY APPLN. INFO.:			JP 1997-257228	19970922
			<--	

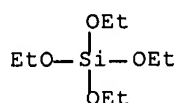
ED Entered STN: 14 Apr 1999

AB Powdered or formed C materials are washed with acid or alkaline, mixed with a
 solution of coating material, and heated for formation of coatings on C
 materials. Chemical bonded coatings showing peeling resistance are formed.

IT 78-10-4, Tetraethoxysilane
 (coating from; formation of peeling-resistant
 coatings on carbon materials for secondary lithium battery
 anodes)

RN 78-10-4 HCAPLUS

CN Silicic acid (H4SiO4), tetraethyl ester (CA INDEX NAME)



IC ICM H01M004-04
ICS H01M004-02; H01M004-58; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium battery anode coated graphite;
coating carbon battery anode
IT Battery anodes
Coating materials
(formation of peeling-resistant coatings on carbon
materials for secondary lithium battery anodes)
IT 7782-42-5, Graphite, uses
(MCMB; formation of peeling-resistant coatings on carbon
materials for secondary lithium battery anodes)
IT 78-10-4, Tetraethoxysilane 1310-65-2, Lithium hydroxide
(coating from; formation of peeling-resistant
coatings on carbon materials for secondary lithium battery
anodes)
IT 7631-86-9P, Silica, uses 13568-46-2P
(coating; formation of peeling-resistant coatings
on carbon materials for secondary lithium battery anodes)

L89 ANSWER 9 OF 9 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:340938 HCAPLUS Full-text

DOCUMENT NUMBER: 127:21008

TITLE: Lithium secondary batteries using
nonaqueous electrolytes

INVENTOR(S): Fukunaga, Takao

PATENT ASSIGNEE(S): Japan Storage Battery Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 09082313	A	19970328	JP 1995-255527	19950907

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PRIORITY APPLN. INFO.: JP 1995-255527 19950907

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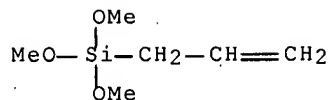
ED Entered STN: 29 May 1997

AB Title batteries have cathodes containing Li ion and anodes prepared from Li ion-absorbing and discharging C materials, one part of which are coated with Si compds. Alternatively, the Si compds. are coated on one part of the above anodes. Title batteries have long cycle life and improved capacity.

IT 2551-83-9, Allyltrimethoxysilane
(coating for graphite; nonaq.
electrolyte Li secondary battery with Si-coated
carbon as anodes)

RN 2551-83-9 HCAPLUS

CN Silane, trimethoxy-2-propen-1-yl- (CA INDEX NAME)



- IC ICM H01M004-02
ICS H01M004-58; H01M010-40
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST lithium battery carbon anode silicon coating; cathode
lithium ion battery
- IT Battery anodes
(Si-coated; nonaq. electrolyte Li
secondary battery with Si-coated carbon as anodes)
- IT Coating materials
(for graphite; nonaq. electrolyte Li secondary
battery with Si-coated carbon as anodes)
- IT Secondary batteries
(lithium; nonaq. electrolyte Li secondary
battery with Si-coated carbon as anodes)
- IT Battery cathodes
Battery electrolytes
(nonaq. electrolyte Li secondary battery with
Si-coated carbon as anodes)
- IT 7782-42-5, Graphite, uses
(anodes; nonaq. electrolyte Li secondary
battery with Si-coated carbon as anodes)
- IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
(cathodes; nonaq. electrolyte Li secondary
battery with Si-coated carbon as anodes)
- IT 541-02-6 999-97-3, Hexamethyldisilazane 1719-57-9,
Chloromethyldimethylchlorosilane 2551-83-9,
Allyltrimethoxysilane 24801-88-5, 3-Isocyanatopropyltriethoxysilane
31001-77-1, (3-Mercaptopropyl)methyldimethoxysilane
(coating for graphite; nonaq.
electrolyte Li secondary battery with Si-coated
carbon as anodes)
- IT 21324-40-3, Lithium hexafluorophosphate
(electrolytes; nonaq. electrolyte Li
secondary battery with Si-coated carbon as anodes)

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(FILE 'HOME' ENTERED AT 10:44:06 ON 06 NOV 2007)

FILE 'HCAPLUS' ENTERED AT 10:45:26 ON 06 NOV 2007

L1 1 SEA ABB=ON PLU=ON US20040106040/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 10:45:43 ON 06 NOV 2007

L2 7 SEA ABB=ON PLU=ON (2768-02-7/BI OR 337529-55-2/BI OR
620168-38-9/BI OR 7440-21-3/BI OR 7440-44-0/BI OR 7631-86-9
/BI OR 7782-42-5/BI)
L3 1 SEA ABB=ON PLU=ON 7440-21-3/RN
L4 5231 SEA ABB=ON PLU=ON (SI(L)O)/ELS(L)2-3/ELC.SUB
L5 5231 SEA ABB=ON PLU=ON L4 AND L4
L6 3 SEA ABB=ON PLU=ON L4 AND L2
L7 274031 SEA ABB=ON PLU=ON (SI(L)O(L)C)/ELS(L)4/ELC.SUB
L8 1 SEA ABB=ON PLU=ON L7 AND L2
L9 1776 SEA ABB=ON PLU=ON L5 NOT 1.7-100/O
L10 1095 SEA ABB=ON PLU=ON L9 NOT 0-0.9999/O
L11 466 SEA ABB=ON PLU=ON L10 AND TIS/CI
L12 334 SEA ABB=ON PLU=ON L11 NOT 1-100/M
L13 97 SEA ABB=ON PLU=ON L12 AND 2/ELC.SUB
L14 247430 SEA ABB=ON PLU=ON L7 NOT PMS/CI
L15 46678 SEA ABB=ON PLU=ON L14 NOT 1-100/NR

FILE 'HCAPLUS' ENTERED AT 11:17:18 ON 06 NOV 2007

L16 QUE ABB=ON PLU=ON PARTICL? OR MICROPARTICL? OR PARTICULAT
? OR DUST? OR GRIT? OR GRAIN# OR GRANUL? OR POWDER? OR
L17 SOOT? OR SMUT? OR FINES# OR PRILL? OR FLAKE# OR PELLET
QUE ABB=ON PLU=ON MU OR M(A)U OR MICRON OR MICROMETER
OR MICRO(W)METER OR NANOMETER OR NANO(W)METER OR NM OR
N(A)M OR MM OR M(A)M
L18 QUE ABB=ON PLU=ON BATTERY OR BATTERIES
L19 483078 SEA ABB=ON PLU=ON L3
L20 7485 SEA ABB=ON PLU=ON L13
L21 QUE ABB=ON PLU=ON NEGATIVE ELECTROD# OR ANOD## OR
NEG?(A)ELECTROD#
L22 151 SEA ABB=ON PLU=ON L20(L)L21
L23 QUE ABB=ON PLU=ON NEGATIVE? ELECTROD# OR ANOD## OR
NEG?(A)ELECTROD#
L24 2249 SEA ABB=ON PLU=ON L23(L)L19
L25 151 SEA ABB=ON PLU=ON L20(L)L23
L26 641795 SEA ABB=ON PLU=ON L16(L)(SIZE# OR DIAMETER? DIAMETRE? OR
RADIUS OR RADII OR DIMENSION? OR WIDTH? OR WIDENESS?)
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OR RADIUS OR RADII OR DIMENSION? OR WIDTH? OR WIDENESS?)
L28 77 SEA ABB=ON PLU=ON L24 AND L27
L29 3 SEA ABB=ON PLU=ON L25 AND L27
L30 62 SEA ABB=ON PLU=ON L28 AND L17
E BATTERY ANODES/CT
L31 19057 SEA ABB=ON PLU=ON "BATTERY ANODES"+PFT,NT/CT
L32 51 SEA ABB=ON PLU=ON L30 AND L31
E COATING MATERIALS/CT
L34 388495 SEA ABB=ON PLU=ON "COATING MATERIALS"+PFT,NT/CT
L35 19 SEA ABB=ON PLU=ON L24 AND L31 AND L34
L36 0 SEA ABB=ON PLU=ON L35 AND L17

10/721,280

L37	1276	SEA ABB=ON	PLU=ON	(LI OR LITHIUM) (2A) (OCCLUD? OR RELEAS?)
L38	1	SEA ABB=ON	PLU=ON	L35 AND L37
L39	2	SEA ABB=ON	PLU=ON	L28 AND L37
L40		QUE ABB=ON	PLU=ON	(NONAQUEOUS OR NONAQ# OR NON(A) (AQ# OR AQUEOUS?)) (2A) ELECTROLYT?
L41	10	SEA ABB=ON	PLU=ON	L32 AND L40
L42	5	SEA ABB=ON	PLU=ON	L35 AND L40
L43	15	SEA ABB=ON	PLU=ON	L41 OR L42
L44	65	SEA ABB=ON	PLU=ON	L25 AND L40
L45	2	SEA ABB=ON	PLU=ON	L44 AND L26
L46	246	SEA ABB=ON	PLU=ON	L20 AND L26
L47	3	SEA ABB=ON	PLU=ON	L46 AND L40
L48	163	SEA ABB=ON	PLU=ON	L46 AND L17
L49	4	SEA ABB=ON	PLU=ON	L48 AND L23
L50	5	SEA ABB=ON	PLU=ON	L45 OR L47 OR L49
L51	3	SEA ABB=ON	PLU=ON	L46 AND L40
L52	5	SEA ABB=ON	PLU=ON	L31 AND L46
L53	7	SEA ABB=ON	PLU=ON	(L50 OR L51 OR L52)
L54	49	SEA ABB=ON	PLU=ON	L46 AND AMORPH?
L55	5	SEA ABB=ON	PLU=ON	L54 AND DISPERS?
L56	0	SEA ABB=ON	PLU=ON	L54 AND L18
L57	8	SEA ABB=ON	PLU=ON	L46 AND L18
				E COMPOSITES/CT
L58	144234	SEA ABB=ON	PLU=ON	COMPOSITES+PFT,NT/CT
L59	9	SEA ABB=ON	PLU=ON	L46 AND L58
L60	9	SEA ABB=ON	PLU=ON	L54 AND (L58 OR COMPOSIT?)
L61	24	SEA ABB=ON	PLU=ON	L57 OR L59 OR L60
L62	25	SEA ABB=ON	PLU=ON	L53 OR L61
L63	91757	SEA ABB=ON	PLU=ON	L15
L64	91757	SEA ABB=ON	PLU=ON	L15
L65	4958	SEA ABB=ON	PLU=ON	L64 AND (L19 OR L20)
L66	13	SEA ABB=ON	PLU=ON	L65 AND CONDUCT? (2A) COAT?
L67	7	SEA ABB=ON	PLU=ON	L65 AND (LI OR LITHIUM) (2A) ION?
L68	35	SEA ABB=ON	PLU=ON	L65 AND (L18 OR L31)
L69	3	SEA ABB=ON	PLU=ON	L68 AND SURFACE TREAT?
L70	3	SEA ABB=ON	PLU=ON	L68 AND SURFACE (2A) TREAT?
L71	3	SEA ABB=ON	PLU=ON	L68 AND L40
L72	11	SEA ABB=ON	PLU=ON	L67 OR (L69 OR L70 OR L71)
L73	1	SEA ABB=ON	PLU=ON	L72 AND L1
				E DISPERSION (OF MATERIALS)/CT
L74	30700	SEA ABB=ON	PLU=ON	"DISPERSION (OF MATERIALS)" +PFT,NT/CT
L75	0	SEA ABB=ON	PLU=ON	L62 AND L74
L76	25	SEA ABB=ON	PLU=ON	L62 OR L75
				E AMORPHOUS/CT
L77	126	SEA ABB=ON	PLU=ON	L63 AND (LI OR LITHIUM) (2A) ION#
L78	12	SEA ABB=ON	PLU=ON	L77 AND L40
L79	6	SEA ABB=ON	PLU=ON	L77 AND ANOD## (2A) ACTIV?
L80	7	SEA ABB=ON	PLU=ON	L77 AND (CONDUCT? (A) COAT? OR L34)
L81	29	SEA ABB=ON	PLU=ON	L72 OR (L78 OR L79 OR L80)
L82	10	SEA ABB=ON	PLU=ON	L81 AND COAT?
L83	8	SEA ABB=ON	PLU=ON	L43 AND (1840-2003)/PRY,AY,PY
L84	16	SEA ABB=ON	PLU=ON	L76 AND (1840-2003)/PRY,AY,PY
L85	10	SEA ABB=ON	PLU=ON	L82 AND (1840-2003)/PRY,AY,PY
L86	1	SEA ABB=ON	PLU=ON	L1 AND (L83 OR L84 OR L85)
L87	7	SEA ABB=ON	PLU=ON	L83 NOT L86
L88	16	SEA ABB=ON	PLU=ON	L84 NOT L86
L89	9	SEA ABB=ON	PLU=ON	L85 NOT